



February 24, 2021

Division of Land Use Regulation  
New Jersey Department of Environmental Protection  
P.O. Box 420, Code 501-02A  
Trenton, New Jersey 08625-0420  
Attn: Application Support

**RE: APPLICATION FOR FRESHWATER WETLANDS LETTER OF INTERPRETATION  
REGULATORY LINE VERIFICATION  
EXXONMOBIL ENVIRONMENTAL AND PROPERTY SOLUTIONS  
BAYWAY REFINERY COMPLEX  
INVESTIGATIVE AREA OF CONCERN (IAOC) C2 WATERFRONT AREA  
BLOCK 586, LOT 6, CITY OF LINDEN, UNION COUNTY, NEW JERSEY**

Dear Sir or Madam:

On behalf of ExxonMobil Environmental and Property Solutions, Kleinfelder, Inc. (Kleinfelder) submits the enclosed materials to request a Letter of Interpretation (LOI), Regulatory Line Verification to verify the delineation of freshwater wetlands and State open waters at Investigative Area of Concern (IAOC) C2 (Waterfront Area) at the Bayway Refinery Complex, located at Block 586, Lot 6 in the City of Linden, Union County, New Jersey. The subject parcel encompasses approximately 17.10 acres. A previous LOI was approved by the New Jersey Department of Environmental Protection (NJDEP) for the site in September 2016 (DLUR File No. 2009-14-0002.4). This application is based on a more recent wetlands delineation performed onsite by Amy S. Greene Environmental Consultants, Inc. (ASGECI) scientists onsite in December 2017 and January 2018.

In accordance with N.J.A.C. 7:7A-18.1 of the Freshwater Wetlands Protection Act Rules, we are submitting a check in the amount of \$2,800 [\$1,000.00 base fee *plus* \$100.00 per acre of the site or fraction thereof (18 acres)]. Also included in this application package is one (1) copy of all items required for an LOI and five (5) copies of the "Wetland Location Survey for NJDEP LOI Application" plan, prepared by Greenman-Pedersen, Inc. The full list of attachments included with this application is below:

- Application Checklist – Letter of Interpretation: Line Verification
- Division of Land Use Regulation Application Form
- Proof of Public Notice
- Application Fee
- Color Photographs
- Wetlands Summary Report
  - Site Conditions and Information
  - State Plane Coordinates
  - Site Figures
  - Qualifications of Preparers
  - Location Data Sheets
- Previously Issued LOI
- Wetland Location Survey

**Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021**



If you have any questions, please contact Nicole Joy at (609) 454-4564 or via email at [njoy@kleinfelder.com](mailto:njoy@kleinfelder.com).

Sincerely,

**KLEINFELDER**

A handwritten signature in blue ink that reads "Nicole E. Joy". The signature is fluid and cursive, with the first letters of each word being capitalized and prominent.

Nicole E. Joy  
Project Engineer

Enclosures

cc: Joseph C. Bodek, City of Linden Clerk  
Alan Straus, USEPA (electronic)  
Charles Zielinski, NJDEP Case Manager (electronic)  
Devin Basile, ExxonMobil (electronic)  
Maureen P. Forlenza, ExxonMobil (electronic)

***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



## **APPLICATION CHECKLIST – LETTER OF INTERPRETATION: LINE VERIFICATION**



State of New Jersey  
Department of Environmental Protection

Revised: January 2019

Website: [www.nj.gov/dep/landuse](http://www.nj.gov/dep/landuse)



FRESHWATER WETLANDS PROTECTION ACT RULES

APPLICATION CHECKLIST

Letter of Interpretation: Line Verification

CALL NJDEP AT (609) 777-0454 IF YOU HAVE ANY QUESTIONS

To apply for a letter of interpretation, please submit the information below to:

**Postal Mailing Address**

NJ Department of Environmental Protection  
Division of Land Use Regulation  
P.O. Box 420, Code 501-02A  
Trenton, New Jersey 08625-0420  
**Attn: Application Support**

**Street Address (Courier & Hand Carry Only)**

NJ Department of Environmental Protection  
Division of Land Use Regulation  
501 East State Street  
Station Plaza 5, 2<sup>nd</sup> Floor  
Trenton, New Jersey, 08609  
**Attn: Application Support**

**Please note: If you apply for a letter of interpretation and a permit, authorization, or waiver at the same time, the application requirements may be combined.**

1. Completed application form; ***Attached.***
2. Documentation that notice of the application has been provided in accordance with N.J.A.C. 7:7A-17, as follows: ***Attached.***

**Notice to municipal clerk (N.J.A.C. 7:7A-17.3(a))**

A copy of the entire application, as submitted to the Department, must be provided to the municipal clerk in each municipality in which the site is located.

- i. Documentation of compliance with this requirement shall consist of a copy of the certified United States Postal Service white mailing receipt, or other written receipt, for each copy of the application sent.

**Notice to governmental entities and property owners (N.J.A.C. 7:7A-17.3(b) and (c))**

A brief description of the proposed project, a legible copy of the site plan, and the form notice letter described at N.J.A.C. 7:7A-17.3(e)1iii must be sent to the following recipients:

- A. The construction official of each municipality in which the site is located;
- B. The environmental commission, or other government agency with similar responsibilities, of each municipality in which the site is located;
- C. The planning board of each municipality in which the site is located;
- D. The planning board of each county in which the site is located;
- E. The local Soil Conservation District if the regulated activity or project will disturb 5,000 square feet or more of land; and
- F. **Adjacent property owners:**  
Unless the LOI is submitted with an application for a project listed at N.J.A.C. 7:7A-17.3(c)1-5 (which require different notice to property owners as described in the rules), notice shall be sent to all owners

of real property, including easements, located within 200 feet of the site of the proposed regulated activity.

The owners of real property, including easements, shall be those on a list that was certified by the municipality, with a date of certification no more than one year prior to the date the application is submitted.

ii. Documentation of compliance with this requirement shall consist of:

- A. A copy of the certified United States Postal Service white mailing receipt for each public notice that was mailed, or other written receipt; and
- B. A certified list of all owners of real property, including easements, located within 200 feet of the property boundary of the site (including name, mailing address, lot, and block) prepared by the municipality for each municipality in which the project is located. The date of certification of the list shall be no earlier than one year prior to the date the application is submitted to the Department.

iii. The form notice letter required under N.J.A.C. 7:7A-17.3(e)1iii shall read as follows:

*"This letter is to provide you with legal notification that an application for letter of interpretation <<has been/will be>> submitted to the New Jersey Department of Environmental Protection, Division of Land Use Regulation for the site shown on the enclosed plan(s). A brief description of the proposed project follows: <<INSERT DESCRIPTION OF THE SITE AND ANY PROPOSED PROJECT>>*

*The complete permit application package can be reviewed at either the municipal clerk's office in the municipality in which the site subject to the application is located, or by appointment at the Department's Trenton Office. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site. Please submit your written comments within 15 calendar days of receiving this letter to:*

*New Jersey Department of Environmental Protection  
Division of Land Use Regulation  
P.O. Box 420, Code 501-02A  
Trenton, New Jersey 08625  
Attn: (Municipality in which the property is located) Supervisor"*

#### Newspaper Notice (N.J.A.C. 7:7A-17.4)

Please refer to this portion of the rules for guidance on providing newspaper notice for certain large scale linear, public, or commercial projects.

3. The appropriate application fee, as specified in N.J.A.C. 7:7A-18.1, in the form of a check (personal, bank, certified, or attorney), money order, or government purchase order: **Attached.**

- i. If not located in the Pinelands Area, made payable to "Treasurer State of New Jersey"
- ii. If located in the Pinelands Area, made payable to "NJDEP-Pinelands Wetlands Program."

4. State plane coordinates in accordance with N.J.A.C. 7:7A-16.7(a)

- i. If submitted with an application for a linear project of one-half mile or longer, include State plane coordinates at the endpoints of the project and State plane coordinates for points located at 1,000-foot intervals along the entire length of the project;
- ii. If submitted with an application for a linear project of less than one-half mile in length, include State plane coordinates at the endpoints of the project;

iii. If submitting an application for only an LOI, or an LOI and any other project, State plane coordinates at the approximate center of the site (within 50 feet of the actual center).

***Included in Wetlands Summary Report, attached.***

5. One set of color photographs showing a representative sample of the vegetation on the site or portion(s) of the site affected by the LOI application. Photographs must be mounted on 8½ -inch by 11-inch paper and accompanied by a map showing the location and direction from which each photograph was taken. Copies of photographs are acceptable provided they are color copies. Black and white copies of photographs are not acceptable. ***Attached.***

6. Color copies of the following maps:

***Included in Wetlands Summary Report, attached.***

- i. The tax map for the property;
- ii. A copy of the portion of the county road map showing the property location;
- iii. A copy of the county soil survey map with the site clearly outlined; and
- iv. A copy of the USGS quad map(s) that include the site, with the site clearly outlined to scale.

7. Documentation of the name(s) and qualification(s) of the person(s) who prepared the application. For a Line Verification LOI, this includes the person who performed the delineation.

***Included in Wetlands Summary Report, attached.***

8. Data sheets for sample locations including:

***Included in Wetlands Summary Report, attached.***

- i. Soil borings: Soil logs describing the soil characteristics at the location of each soil boring, including a description of the field indicators, or lack thereof, for hydrology as outlined in the 1989 Federal manual;
- ii. Vegetation: A description of the vegetative species on the site recorded at each soil boring location classified using the United States Fish and Wildlife Service (USFWS) categories listed under "R/IND" and "NAT-IND" (Regional and National Indicators) columns in the "National Wetlands Plant List" and amendments thereto, compiled by the USFWS, United States Army Corps of Engineers, USEPA and the USDA's Natural Resources Conservation Service;

9. Survey: Five (5) folded copies of a topographical survey of the site; drawn at a scale of no more than 1 inch to 50 feet, certified in accordance with N.J.A.C. 7:7A-16.2(j), signed and sealed by a licensed surveyor pursuant to N.J.A.C. 13:40-7.2 through 7.4 and N.J.A.C. 7:7A-16.2(h) and 16.3(a)4, which:

***Attached.***

- i. Includes the site boundaries (If applying for a line verification for an entire site) or identifies the portion of the site (which meets the requirements of N.J.A.C. 7:7A-4.5(b)2-3) subject to the verification
- ii. Proposed boundaries of all on-site wetlands, and/or State Open Waters plus all transition areas (boundary of transition area can be added prior to application or during review);
  - A. When delineating a State open water one to five feet in width measured from top of bank, with no wetland boundary, the delineation shall indicate the centerline of the State open water with several data points numbered and shown on the plans. When delineating a State open water that is greater than five feet in width, the delineation shall include two survey lines, with numbered points, depicting the top of bank on both sides of the State open water;
- iii. Depicts the flags or stakes identifying the boundaries in the field, sequentially numbered, and sequentially numbered line segments between each flag or stake;
- iv. Identifies the location and identifying number of each sample location described in item A above;
- v. Topographic contours as follows:
  - A. If the site is located in Middlesex County or Mercer County or anywhere north of these counties, the survey must show topographic contours at intervals of no more than five feet;
  - B. If the site is located south of Middlesex and Mercer Counties, the survey must show topographic contours at intervals of no more than two feet

- vi. A digital copy, georeferenced in NAD 83, of any survey can also be provided in addition to the paper.

10. Site requirements: ***All site requirements have been fulfilled.***

- i. Boundary Markers: The property boundaries and the proposed boundaries of all wetlands and/or open waters must be flagged and/or staked on the site as follows:
- A. All flags and/or stakes must be present on the site prior to submission of the application to the Department;
  - B. The flags and/or stakes must be no more than 75 feet apart, must be set in relation to identifiable points and landmarks if possible and from each flag and/or stake you should be able to see the adjacent ones;
  - C. Each flag and/or stake must be uniquely (sequentially if possible) numbered and identified on the survey;
  - D. Flag and/or stakes shall be positioned so that they can be clearly visible at any time and any weather condition during the year, i.e. care should be taken so that flags and/or stakes are not positioned in a location likely to be covered by snow in the winter or overgrown in the summer.
  - E. Flags should not be tied to dead or annual vegetation.
- ii. Sample locations: All sample locations referenced in the data sheets must be clearly marked in the field.

11. Isolated wetland: If the applicant would like the Department to verify that a wetland is an isolated wetland, a request for that determination, and supporting documentation demonstrating that the wetland is isolated. For example, if inlets or pipes are present in the vicinity of the subject wetland, a map of the storm sewer system depicting the endpoint and invert elevations of the inlet or pipe.

***Included with application materials where applicable.***

***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



**DIVISION OF LAND USE REGULATION APPLICATION FORM**



**State of New Jersey**  
**Department of Environmental Protection**  
Division of Land Use Regulation  
Application Form for Permit(s)/Authorization(s)  
501 E. State Street Mail Code 501-02A P.O. Box 420  
Trenton, NJ 08625-0420  
Phone #: (609) 777-0454 Web: [www.nj.gov/dep/landuse](http://www.nj.gov/dep/landuse)



Please print legibly or type the following: Complete all sections and pages unless otherwise noted. Is this project a NJDOT Priority 1 Repair Project? Yes ☐ No ☒

Initial Application ☒ Response to DLUR Deficiency ☐ Extension / Modification ☐

Is this project a NJDOT Priority 2 Repair Project? Yes ☐ No ☒

1. **Applicant Name:** Exxon Mobil Corporation c/o Maureen Forlenza E-Mail: [maureen.p.forlenza@exxonmobil.com](mailto:maureen.p.forlenza@exxonmobil.com)  
**Address:** 1400 Park Avenue, Building 7 Daytime Phone: \_\_\_\_\_ Ext. \_\_\_\_\_  
**City/State:** Linden, NJ Zip Code: 07036 Cell Phone: 703-963-7132
2. **Agent Name:** Mr./Ms/Mrs. Nicole Joy E-Mail: [NJoy@Kleinfelder.com](mailto:NJoy@Kleinfelder.com)  
**Firm Name:** Kleinfelder, Inc. Daytime Phone: 609-454-4564 Ext. \_\_\_\_\_  
**Address:** 150 College Road West, Suite 100 Zip Code: 08540 Cell Phone: \_\_\_\_\_  
**City/State:** Princeton, NJ
3. **Property Owner:** Phillips 66 E-mail: \_\_\_\_\_  
**Address:** 1400 Park Avenue Daytime Phone: 908-523-6041 Ext. \_\_\_\_\_  
**City/State:** Linden, NJ Zip Code: \_\_\_\_\_ Cell Phone: \_\_\_\_\_
4. **Project Name:** Bayway Refinery Complex IAOC C2 Lot 6 LOI Application Address/Location: 1400 Park Avenue  
**Municipality:** Linden, NJ County: Union Zip Code: 07036  
**Block(s):** 586 Lot(s): 6  
N.A.D. 1983 State Plane Coordinates (feet) E(x): 573,411 N(y): 652,540 *Not Longitude/Latitude*  
**Watershed:** Morses Creek/Piles Creek 07CA Subwatershed: Morses Creek/Piles Creek  
**Nearest Waterway:** Arthur Kill
5. **Project Description:** ExxonMobil is seeking a letter of interpretation regulatory line verification of wetlands within IAOC C2 (Block 586, Lot 6) at the Bayway Refinery Complex.

Provide if applicable: Previous LUR File # (s): 2009-14-0002.4

Waiver request ID # (s): \_\_\_\_\_

**A. SIGNATURE OF APPLICANT (required):**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining and preparing the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment. If the applicant is an organization such as a corporation, municipal entity, home-owners association etc., the party responsible for the application shall sign on behalf of the organization.

Signature of Applicant

Date 2/16/21  
Maureen Forlenza, Bayway Team Lead, Agent and  
Attorney in Fact

Print Name

Signature of Applicant

Date

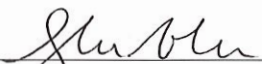
Print Name

**B. PROPERTY OWNER'S CERTIFICATION**

I hereby certify that the undersigned is the **owner of the property** upon which the proposed work is to be done. This endorsement is certification that the owner/easement holder grants permission for the conduct of the proposed activity. In addition, written consent is hereby given to allow access to the site by representatives or agents of the Department for the purpose of conducting a site inspection(s) or survey(s) of the property in question.

In addition, the undersigned property owner hereby certifies:

1. Whether any work is to be done within an easement? Yes ☐ No ☒  
(If answer is "Yes" – Signature/title of responsible party is required below)
2. Whether any part of the entire project will be located within property belonging to the State of New Jersey? Yes ☐ No ☒
3. Whether any work is to be done on any property owned by any public agency that would be encumbered by Green Acres? Yes ☐ No ☒
4. Whether this project requires a Section 106 (National Register of Historic Places) Determination as part of a federal approval? Yes ☐ No ☒

  
\_\_\_\_\_  
Signature of Owner  
2/16/21  
\_\_\_\_\_  
Date  
Meghan Nolan on behalf of Phillips 66  
\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Signature of Owner/Easement Holder  
\_\_\_\_\_  
Date  
\_\_\_\_\_  
Print Name/Title

**C. APPLICANT'S AGENT**

I, Maureen Forlenza, the Applicant Owner and \_\_\_\_\_, co-Applicant/Owner authorize to act as my agent/representative in all matters pertaining to my application the following person:

Nicole Joy  
\_\_\_\_\_  
Name of Agent  
Project Engineer  
\_\_\_\_\_  
Occupation/Profession of Agent

  
\_\_\_\_\_  
Signature of Applicant/Owner  
\_\_\_\_\_  
Signature of co-Applicant/Owner

**AGENT'S CERTIFICATION:**


I agree to serve as agent for the above-referenced applicant:

  
\_\_\_\_\_  
Signature of Agent

Kleinfelder, Inc.  
\_\_\_\_\_  
Name of Firm

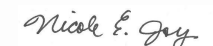
**D. STATEMENT OF PREPARER OF PLANS, SPECIFICATIONS, SURVEYOR'S OR ENGINEER'S REPORT**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining and preparing the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment.

  
\_\_\_\_\_  
Signature  
Kevin S. Bogerman  
\_\_\_\_\_  
Print Name  
Licensed Surveyor, Greenman-Pedersen, Inc.  
\_\_\_\_\_  
Position & Name of Firm  
41379 02/22/2021  
\_\_\_\_\_  
Professional License # Date

**E. STATEMENT OF PREPARER OF APPLICATION, REPORTS AND/OR SUPPORTING DOCUMENTS (other than engineering)**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining and preparing the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment.

  
\_\_\_\_\_  
Signature  
Nicole Joy  
\_\_\_\_\_  
Print Name  
Project Engineer, Kleinfelder  
\_\_\_\_\_  
Position & Name of Firm  
\_\_\_\_\_  
Professional License # 2/22/2021  
(If Applicable) Date

**B. PROPERTY OWNER'S CERTIFICATION**

I hereby certify that the undersigned is the **owner of the property** upon which the proposed work is to be done. This endorsement is certification that the owner/easement holder grants permission for the conduct of the proposed activity. In addition, written consent is hereby given to allow access to the site by representatives or agents of the Department for the purpose of conducting a site inspection(s) or survey(s) of the property in question.

In addition, the undersigned property owner hereby certifies:

- |  |  |
|--|--|
| 1. Whether any work is to be done within an easement?  | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| (If answer is "Yes" – Signature/title of responsible party is required below)  |  |
| 2. Whether any part of the entire project will be located within property belonging to the State of New Jersey?                    | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 3. Whether any work is to be done on any property owned by any public agency that would be encumbered by Green Acres?              | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 4. Whether this project requires a Section 106 (National Register of Historic Places) Determination as part of a federal approval? | Yes <input type="checkbox"/> No <input type="checkbox"/> |

Signature of Owner

Date

Print Name

Signature of Owner/Easement Holder

Date

Print Name/Title

**C. APPLICANT'S AGENT**

I \_\_\_\_\_, the Applicant/Owner and \_\_\_\_\_, co-Applicant/Owner authorize to act as my agent/representative in all matters pertaining to my application the following person:

Name of Agent

Occupation/Profession of Agent

Signature of Applicant/Owner

Signature of co-Applicant/Owner

**AGENT'S CERTIFICATION:**

I agree to serve as agent for the above-referenced applicant:

Signature of Agent

Name of Firm

**D. STATEMENT OF PREPARER OF PLANS, SPECIFICATIONS, SURVEYOR'S OR ENGINEER'S REPORT**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining and preparing the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment.

Signature

Print Name

Position & Name of Firm

Professional License #

Date

**E. STATEMENT OF PREPARER OF APPLICATION, REPORTS AND/OR SUPPORTING DOCUMENTS (other than engineering)**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining and preparing the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment.

Signature

Douglas A. Freese, Ph.D.

Print Name

Preparer of Wetlands Delineation Report

Position & Name of Firm

Professional License #  
(If Applicable)

Date

**FEE CALCULATION TIPS:**

- Whenever the calculation requires an acreage figure (including the Stormwater calculations), you will need to round UP to the nearest whole number, for example: 0.25 acres gets rounded up to one (1) acre or 2.61 acres gets rounded up to three (3) acres.
- The maximum fee for a CAFRA Individual permit, an Upland Waterfront Development permit, or an In-Water Waterfront Development permit is \$30,000 per permit type. For example: if you are applying for both an upland and an in-water Waterfront Development the maximum fee is applied to each permit for a maximum total of \$60,000 plus any applicable stormwater review fee.
- The stormwater review fee is applied only one time per project, maximum of \$20,000, regardless of multiple applications.

APPLICATION(S) FOR: **Please check each permit/authorization that you are applying for and fill in the calculated fee (for each) in the "Fee Paid" column**

	Coastal General Permits	Fee Amount	Fee Paid
<input type="checkbox"/>	CZMGP1 Amusement Pier Expansion	\$1,000.00	
<input type="checkbox"/>	CZMGP2 Beach/Dune Activities	\$1,000.00	
<input type="checkbox"/>	CZMGP3 Voluntary Reconstruction Certain Residential/Commercial Dev.	\$1,000.00	
<input type="checkbox"/>	CZMGP4 Development of one or two SFH or Duplexes	\$1,000.00	
<input type="checkbox"/>	CZMGP5 Expansion or Reconstruction SFH/Duplex	\$1,000.00	
<input type="checkbox"/>	CZMGP6 New Bulkhead/Fill Lagoon	\$1,000.00	
<input type="checkbox"/>	CZMGP7 Revetment at SFH/Duplex	\$1,000.00	
<input type="checkbox"/>	CZMGP8 Gabions at SFH/Duplex	\$1,000.00	
<input type="checkbox"/>	CZMGP9 Support Facilities at a Marina	\$1,000.00	
<input type="checkbox"/>	CZMGP10 Reconstruction of Existing Bulkhead	\$1,000.00	
<input type="checkbox"/>	CZMGP11 Hazard Waste Clean-up	\$1,000.00	
<input type="checkbox"/>	CZMGP12 Landfall of Utilities	\$1,000.00	
<input type="checkbox"/>	CZMGP13 Recreation Facility at Public Park	\$1,000.00	
<input type="checkbox"/>	CZMGP14 Bulkhead Construction & Fill Placement	\$1,000.00	
<input type="checkbox"/>	CZMGP15 Construction of Piers/Docks/Ramps in Lagoons	\$1,000.00	
<input type="checkbox"/>	CZMGP16 Minor Maintenance Dredging in Lagoons	\$1,000.00	
<input type="checkbox"/>	CZMGP17 Eroded Shoreline Stabilization	\$1,000.00	
<input type="checkbox"/>	CZMGP18 Avian Nesting Structures	\$1,000.00	
<input type="checkbox"/>	CZMGP19 Modification of Electrical Substations	\$1,000.00	
<input type="checkbox"/>	CZMGP20 Legalization of the Filling of Tidelands	\$1,000.00	
<input type="checkbox"/>	CZMGP21 Construction of Telecommunication Towers	\$1,000.00	
<input type="checkbox"/>	CZMGP22 Construction of Tourism Structures	\$1,000.00	
<input type="checkbox"/>	CZMGP23 Geotechnical Survey Borings	\$1,000.00	
<input type="checkbox"/>	CZMGP24 Habitat Creation, Restoration, Enhancement, Living Shorelines	No Fee	No Fee
<input type="checkbox"/>	CZMGP25 1 to 3 Turbines < 200 Feet	\$1,000.00	
<input type="checkbox"/>	CZMGP26 Wind Turbines < 250 Feet	\$1,000.00	
<input type="checkbox"/>	CZMGP27 Dredge Lagoon (post storm event)	\$1,000.00	
<input type="checkbox"/>	CZMGP28 Dredge post Bulkhead Failure	\$1,000.00	
<input type="checkbox"/>	CZMGP29 Dredge Marina (post storm event)	\$1,000.00	
<input type="checkbox"/>	CZMGP30 Aquaculture Activities	\$1,000.00	
<input type="checkbox"/>	CZMGP31 Placement of Shell (shellfish areas)	\$1,000.00	
<input type="checkbox"/>	CZMGP32 Application of Herbicide in Coastal Wetlands	\$1,000.00	
<input type="checkbox"/>	CZM Permit-by-Certification (On-line application ONLY)	\$1000.00	

	Coastal Individual Permits	Fee Amount	Fee Paid
<input type="checkbox"/>	CAFRA – IP SFH or Duplex	\$2,000	
<input type="checkbox"/>	CAFRA – IP Residential not SFH/duplex	\$3,000 x _____ # of units	
<input type="checkbox"/>	CAFRA – IP Commercial, Industrial or Public	\$3,000 x _____ acres of the site	
<input type="checkbox"/>	WFD - IP SFH or Duplex (Upland/Landward of MHWL)	\$2,000	
<input type="checkbox"/>	WFD – IP Residential not SFH/duplex (Upland/Landward of MHWL)	\$3,000 x _____ # of units	
<input type="checkbox"/>	WFD – IP Commercial, Industrial or Public Development (Upland/Landward of MHWL)	\$3,000 x _____ acres of the site	
<input type="checkbox"/>	WFD - IP SFH or Duplex (Waterward of MHWL)	\$2,000	
<input type="checkbox"/>	WFD – IP Residential not SFH/duplex (Waterward of MHWL)	\$3,000 x _____ acres of water area impacted	
<input type="checkbox"/>	WFD – IP Commercial, Industrial or Public Development (Waterward of MHWL)	\$3,000 x _____ acres of water area impacted	
<input type="checkbox"/>	CSW – IP SFH or Duplex	\$2,000	
<input type="checkbox"/>	CSW – IP All Development not SFH/duplex	\$3,000 x _____ acres of wetlands disturbed	

	Additional Coastal Authorizations	Fee Amount	Fee Paid
<input type="checkbox"/>	Modification of a Coastal GP	\$500	
<input type="checkbox"/>	Minor Technical Modification of a Coastal Wetland Permit	\$500 x _____ # of items to be revised	
<input type="checkbox"/>	Minor Technical Modification of a CAFRA IP	\$500 x _____ # of items to be revised	
<input type="checkbox"/>	Minor Technical Modification of a Waterfront IP	\$500 x _____ # of items to be revised	
<input type="checkbox"/>	Major Technical Modification of a Coastal Wetland Permit	0.30 x _____ original fee = Fee (Minimum \$500)	
<input type="checkbox"/>	Major Technical Modification of a CAFRA IP	0.30 x _____ original fee = Fee (Minimum \$500)	
<input type="checkbox"/>	Major Technical Modification of a Waterfront IP	0.30 x _____ original fee = Fee (Minimum \$500)	
<input type="checkbox"/>	Zane Letter (Waterfront Development Exemption)	\$500	
<input type="checkbox"/>	CAFRA Exemption Request	\$500	
<input type="checkbox"/>	CZM General Permit Extension	\$240 x _____ # of GPs to be extended	
<input type="checkbox"/>	Waterfront Development Individual Permit – Extension (Waterward of MHWL)	0.25 x _____ original fee = Fee (Maximum \$3,000)	
<input type="checkbox"/>	Meadowlands District Water Quality Certificate	\$5,000 + (\$2,500 x _____ # acres regulated area disturbed)	
<input type="checkbox"/>	Individual Permit Equivalency/CERCLA	No Fee	No Fee

	Consistency Determination	Fee Amount	Fee Paid
<input type="checkbox"/>	Water Quality Certificate (NOTE: No fee required under the coastal program)	\$5,000 + (\$2,500 x _____ # acres regulated area disturbed)	
<input type="checkbox"/>	Federal Consistency	No Fee	No Fee

APPLICATION(S) FOR: Please check each permit/authorization that you are applying for and fill in the calculated fee (for each) in the "Fee Paid" column

	Freshwater Wetlands General Permits	Fee Amount	Fee Paid
<input type="checkbox"/>	FWGP1 Main. & Repair Exist Feature	\$1,000.00	
<input type="checkbox"/>	FWGP2 Underground Utility Lines	\$1,000.00	
<input type="checkbox"/>	FWGP3 Discharge of Return Water	\$1,000.00	
<input type="checkbox"/>	FWGP4 Hazard Site Invest/Cleanup	\$1,000.00	
<input type="checkbox"/>	FWGP5 Landfill Closures	\$1,000.00	
<input type="checkbox"/>	FWGP6 Filling of Non-Tributary Wetlands	\$1,000.00	
<input type="checkbox"/>	FWGP6A TA Adj. to Non-Tributary Wetlands	\$1,000.00	
<input type="checkbox"/>	FWGP7 Human-made Ditches/Swales in Headwaters	\$1,000.00	
<input type="checkbox"/>	FWGP8 House Additions	\$1,000.00	
<input type="checkbox"/>	FWGP9 Airport Sight-line Clearing	\$1,000.00	
<input type="checkbox"/>	FWGP10A Very Minor Road Crossings	\$1,000.00	
<input type="checkbox"/>	FWGP10B Minor Road Crossings	\$1,000.00	
<input type="checkbox"/>	FWGP11 Outfalls / Intakes Structures	\$1,000.00	
<input type="checkbox"/>	FWGP12 Surveying and Investigating	\$1,000.00	
<input type="checkbox"/>	FWGP13 Lake Dredging	\$1,000.00	
<input type="checkbox"/>	FWGP14 Water Monitoring Devices	\$1,000.00	
<input type="checkbox"/>	FWGP15 Mosquito Control Activities	\$1,000.00	
<input type="checkbox"/>	FWGP16 Creation/Restoration/Enhancement Habitat	No Fee	No Fee
<input type="checkbox"/>	FWGP17 Trails / Boardwalks	\$1,000.00	
<input type="checkbox"/>	FWGP17A Non-Motorized Multi-Use Paths	\$1,000.00	
<input type="checkbox"/>	FWGP18 Dam Repairs	\$1,000.00	
<input type="checkbox"/>	FWGP19 Docks and Piers	\$1,000.00	
<input type="checkbox"/>	FWGP20 Bank Stabilization	\$1,000.00	
<input type="checkbox"/>	FWGP21 Above Ground Utility Lines	\$1,000.00	
<input type="checkbox"/>	FWGP22 Expansion Cranberry Growing (Pinelands)	No Fee	No Fee
<input type="checkbox"/>	FWGP23 Spring Developments	\$1,000.00	
<input type="checkbox"/>	FWGP24 Malfunctioning Individual Septic Systems	No Fee	No Fee
<input type="checkbox"/>	FWGP25 Minor Channel / Stream Cleaning	\$1,000.00	
<input type="checkbox"/>	FWGP26 Redevelop Previously Disturbed Site	\$1,000.00	
<input type="checkbox"/>	FWGP27 Application of herbicide in wetlands	\$1,000.00	

	Highlands	Fee Amount	Fee Paid
<input type="checkbox"/>	Pre-application Meeting	\$500.00	
<input type="checkbox"/>	Resource Area Determination Boundary Delineation < one acre	\$500.00	
<input type="checkbox"/>	Resource Area Footprint of Disturbance	\$500 + (\$50 x _____ # of acres of the site)	
<input type="checkbox"/>	Resource Area Determination Verification (> one acre)	\$750 + (\$100 x _____ # of acres of the site)	
<input type="checkbox"/>	Resource Area Determination Extension	0.25 x _____ original fee (Minimum \$250)	
<input type="checkbox"/>	HPAAGP 1/ Habitat Creation/Enhance	No Fee	No Fee
<input type="checkbox"/>	HPAAGP 2 Bank Stabilization	\$500.00	
<input type="checkbox"/>	Preservation Area Approval (PAA)		
<input type="checkbox"/>	PAA with Waiver (Specify type below)		
	Waiver Type:		
<input type="checkbox"/>	HPAA Extension	\$1,000	

	Freshwater Individual Permits	Fee Amount	Fee Paid
<input type="checkbox"/>	FWW IP-SFH/Duplex-Wetlands	\$2,000	
<input type="checkbox"/>	FWW IP-Wetlands (not SFH/Duplex)	\$5,000 + (\$2,500 x _____ # acres FWW disturbed)	
<input type="checkbox"/>	FWW IP-SFH/Duplex-Open Water	\$2,000	
<input type="checkbox"/>	FWW IP-Open Water (not SFH/Duplex)	\$5,000 + (\$2,500 x _____ # acres FWW disturbed)	

	Freshwater Wetlands Transition Area Waivers	Fee Amount	Fee Paid
<input type="checkbox"/>	TAW Averaging Plan	<i>With valid LOI</i> \$1,000 + (\$100 x _____ # acres TA disturbed)	
<input type="checkbox"/>	TAW Hardship Reduction		
<input type="checkbox"/>	TAW Reduction per N.J.A.C. 7:7A-8.1(d)		
<input type="checkbox"/>	TAW Special Activity Individual Permit		
<input type="checkbox"/>	TAW Special Activity Linear Development	<i>Without valid LOI</i> \$1000 + (\$100 x _____ acres TA disturbed) + LOI Fee	
<input type="checkbox"/>	TAW Special Activity Redevelopment		
<input type="checkbox"/>	TAW Special Activity Stormwater		

	Letter of Interpretation	Fee Amount	Fee Paid
<input type="checkbox"/>	LOI Presence Absence	\$1,000.00	
<input type="checkbox"/>	LOI Footprint of Disturbance (3 Maximum)	\$1,000.00 each	
<input type="checkbox"/>	LOI Delineation < 1.00 Acres	\$1,000.00	
<input checked="" type="checkbox"/>	LOI Verification	\$1,000 + (\$100 x _____ # of acres of the site)	\$2,800
<input type="checkbox"/>	LOI Partial Site Verification	\$1,000 + (\$100 x _____ # of acres of the site subject to LOI)	
<input type="checkbox"/>	LOI Extension Presence/Absence, Footprint, Delineation < 1 acre (Re-Issuance)	\$500	
<input type="checkbox"/>	LOI Extension Line Verification (Re-Issuance)	0.50 x _____ original fee (Minimum \$500)	

	Additional Freshwater Wetlands Authorizations	Fee Amount	Fee Paid
<input type="checkbox"/>	FWGP Administrative Modification	No fee	No Fee
<input type="checkbox"/>	FWGP Minor technical modification	\$500.00	
<input type="checkbox"/>	FWGP Major technical modification	\$500.00	
<input type="checkbox"/>	Individual Permit Administrative Modification	No Fee	No Fee
<input type="checkbox"/>	Individual Permit Minor Technical Modification	\$500.00	
<input type="checkbox"/>	Individual Permit Major Technical Modification	0.30 x _____ original fee (Minimum \$500)	
<input type="checkbox"/>	TAW Administrative Modification	No Fee	No Fee
<input type="checkbox"/>	TAW Minor Technical Modification	\$500.00	
<input type="checkbox"/>	TAW Major Technical Modification	0.30 x _____ original fee (Minimum \$500)	
<input type="checkbox"/>	FWGP Extension	\$500 x _____ # of items to be extended	
<input type="checkbox"/>	Individual Permit/Open Water Permit Extension	0.30 x _____ original fee (Minimum \$500)	
<input type="checkbox"/>	TAW Extension	\$500 x _____ # of items to be extended	
<input type="checkbox"/>	Freshwater Wetlands Exemption	\$500.00	
<input type="checkbox"/>	TAW Exemption	\$500.00	
<input type="checkbox"/>	Permit Equivalency/CERCLA	No Fee	No Fee

APPLICATION(S) FOR: Please check each permit/authorization that you are applying for and fill in the calculated fee (for each) in the "Fee Paid" column

	Flood Hazard Area General Permits	Fee Amount	Fee Paid
<input type="checkbox"/>	FHAGP1 Channel Clean w/o Sediment Removal	No Fee	
<input type="checkbox"/>	FHAGP1 Channel Clean w/Sediment Removal	No Fee	
<input type="checkbox"/>	FHAGP2 Mosquito Control	\$1,000.00	
<input type="checkbox"/>	FHAGP3 Scour Protection Bridges/Culverts	\$1,000.00	
<input type="checkbox"/>	FHAGP4 Creation/Restoration/Enhancement of Habitat and Water Quality Values and Functions	No Fee	
<input type="checkbox"/>	FHAGP5 Reconstruction and/or Elevation of Building in a Floodway	No Fee	
<input type="checkbox"/>	FHAGP6 Construction of One SFH/Duplex and Driveway	\$1,000.00	
<input type="checkbox"/>	FHAGP7 Relocation of Manmade Roadside Ditches for Public Roadway Improvements	\$1,000.00	
<input type="checkbox"/>	FHAGP8 Placement of Storage Tanks	\$1,000.00	
<input type="checkbox"/>	FHAGP9 Construction/Reconstruction of Bridge/Culvert Across Water < 50 Acres	\$1,000.00	
<input type="checkbox"/>	FHAGP10 Construction/Reconstruction of Bridge/Culvert Across Water > 50 Acres	\$1,000.00	
<input type="checkbox"/>	FHAGP11 Stormwater Outfall Along Regulated Water <50 Acres	\$1,000.00	
<input type="checkbox"/>	FHAGP12 Construction of Footbridges	\$1,000.00	
<input type="checkbox"/>	FHAGP13 Construction of Trails and Boardwalks	\$1,000.00	
<input type="checkbox"/>	FHAGP14 Application of herbicide in riparian zone	\$1,000.00	

	Additional Flood Hazard Area Authorizations	Fee Amount	Fee Paid
<input type="checkbox"/>	FHA Hardship Exception Request	\$4,000	
<input type="checkbox"/>	FHA GP Administrative Modification	No Fee	No Fee
<input type="checkbox"/>	FHA GP Minor technical modification	\$500 x _____ # of project elements to be revised	
<input type="checkbox"/>	FHA GP Major technical modification	0.30 x _____ original fee (Minimum \$500)	
<input type="checkbox"/>	FHA Individual Permit Administrative Modification	No Fee	No Fee
<input type="checkbox"/>	FHA Individual Permit Minor Technical Modification	\$500 x _____ # of project elements to be revised	
<input type="checkbox"/>	FHA Individual Permit Major Technical Modification	0.30 x _____ original fee (Minimum \$500)	
<input type="checkbox"/>	FHA Verification Administrative Modification	No Fee	No Fee
<input type="checkbox"/>	FHA Verification Minor Technical Modification	\$500 x _____ # of project elements to be revised	
<input type="checkbox"/>	FHA Verification Major Technical Modification	0.30 x _____ original fee (Minimum \$500)	
<input type="checkbox"/>	FHA GP Extension	\$240	
<input type="checkbox"/>	FHA Individual Permit Extension	0.25 x _____ original fee	
<input type="checkbox"/>	FHA Verification Extension of Methods 1, 2, 3, 5, or Riparian Zone Only	\$240	
<input type="checkbox"/>	FHA Verification Extension of Methods 4 or 6	0.25 x _____ original fee	
<input type="checkbox"/>	FHA Individual Permit Equivalency/CERCLA	No Fee	No Fee
<input type="checkbox"/>	FHA GP Administrative Modification	No Fee	No Fee

	Flood Hazard Area Individual Permits	Fee Amount	Fee Paid
<input type="checkbox"/>	FHA - IP SFH and/or Accessory Structures	\$2,000	
<input type="checkbox"/>	Individual Permit ( Fee is calculated by adding the base fee to the specific elements below)	\$3,000 Base Fee	
	FHA - IP Utility*	+ (\$1,000 x _____ # of water crossings)	
	FHA - IP Bank/Channel (No Calculation Review) *	+ \$1,000	
	FHA - IP Bank/Channel (With Calculation Review) *	+ (\$4,000 + (\$400 x _____ per 100 linear ft.))	
	FHA - IP Bridge/Culvert/Footbridge/Low Dam (No Calculation Review)*	+ (\$1,000 x _____ # of structures)	
	FHA - IP Bridge/Culvert/Footbridge/Low Dam (With Calculation Review) *	+ (\$4,000 x _____ # of structures)	
	FHA - Review of Flood Storage Displacement (net fill) Calculations*	+ \$4,000	
	Total	IP Review Fee	

Stormwater Review Fee (Maximum Fee = \$20,000)	Fee Amount (Round UP to the nearest whole number)	Fee Paid
<input type="checkbox"/> Stormwater Review ( Fee is calculated by adding the base fee to the specific elements below)	\$3,000 Base Fee	
Review of Groundwater Calculations	+ \$250 x _____ # acres disturbed	
Review of Runoff Quantity Calculations	+ \$250 x _____ # acres disturbed	
Review of Water Quality Calculations	+ \$250 x _____ # acres impervious surface	
Total	Stormwater Review Fee	

	Applicability Determination	Fee Amount	Fee Paid
<input type="checkbox"/>	Coastal Applicability Determination	No Fee	No Fee
<input type="checkbox"/>	Flood Hazard Applicability Determination	No Fee	No Fee
<input type="checkbox"/>	Highlands Jurisdictional Determination	No Fee	No Fee
<input type="checkbox"/>	Executive Order 215	No Fee	No Fee

	Flood Hazard Area Verifications	Fee Amount	Fee Paid
<input type="checkbox"/>	Verification-Delineation of Riparian Zone Only	\$1,000	
<input type="checkbox"/>	Verification-Method 1 (DEP Delineation) *	\$1,000	
<input type="checkbox"/>	Verification-Method 2 (FEMA Tidal Method) *	\$1,000	
<input type="checkbox"/>	Verification-Method 3 (FEMA Fluvial Method) *	\$1,000	
<input type="checkbox"/>	Verification-Method 4 (FEMA Hydraulic Method)	\$4,000 + (\$400 x _____ per 100 linear feet)	
<input type="checkbox"/>	Verification-Method 5 (Approximation Method) *	\$1,000	
<input type="checkbox"/>	Verification-Method 6 (Calculation Method)	\$4,000+(\$400 x _____ per 100 linear feet)	

TOTAL FEE:	\$2,800
CHECK NUMBER:	12197

\*Fee not applicable to (1) SFH

\*Fee not applicable to (1) SFH

APPLICANT NAME: Exxon Mobil Corporation

FILE # (if known): 2009-04-0001.1

## APPLICATION FORM - APPENDIX I

**Section 1:** Please provide the following information for the overall project site. All area measurements shall be recorded **in acres to the nearest thousandth** (0.001 acres).

<u>PROPOSED:</u>	<u>PRESERVED</u>	<u>UNDISTURBED</u>	<u>DISTURBED</u>
<i>RIPARIAN ZONE</i>	_____	_____	_____
<i>CZMRA FORESTED</i> <i>(CZMRA IP – Only)</i>	_____	_____	_____
<i>E &amp; THABITAT</i> <i>Endangered and/or Threatened</i>	_____	_____	_____
<i>FRESHWATER WETLANDS</i>	_____	_____	_____

**Section 2:** Please provide the following information for each permit/authorization requested pursuant to the Freshwater Wetlands Protection Act. All area measurements shall be recorded **in acres to the nearest thousandth** (0.001 acres). Use additional sheets if necessary

PERMIT TYPE	WETLAND TYPE <i>Emergent, Forest, Shrub, Etc.</i>	RESOURCE CLASSIFICATION <i>Ordinary, Intermediate, Exceptional, EPA, Etc.</i>	
<u>PROPOSED DISTURBANCE:</u>	<u>WETLANDS</u>	<u>TRANSITION AREA</u>	<u>SOW</u>
<i>FILLED</i>	_____	_____	_____
<i>EXCAVATED</i>	_____	_____	_____
<i>CLEARED</i>	_____	_____	_____
<i>TEMPORARY DISTURBANCE</i>	_____	_____	_____

PERMIT TYPE	WETLAND TYPE <i>Emergent, Forest, Shrub, Etc.</i>	RESOURCE CLASSIFICATION <i>Ordinary, Intermediate, Exceptional, EPA, Etc.</i>	
<u>PROPOSED DISTURBANCE:</u>	<u>WETLANDS</u>	<u>TRANSITION AREA</u>	<u>SOW</u>
<i>FILLED</i>	_____	_____	_____
<i>EXCAVATED</i>	_____	_____	_____
<i>CLEARED</i>	_____	_____	_____
<i>TEMPORARY DISTURBANCE</i>	_____	_____	_____

***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



**PROOF OF PUBLIC NOTICE**



February 23, 2021

NAME  
ADDRESS  
ADDRESS  
ADDRESS

**Re: Application for Freshwater Wetlands Letter of Interpretation  
Notification of Land Owners within 200 Feet of Project and Public Agencies**  
Investigative Area of Concern (IAOC) C2 – Waterfront Area  
1400 Park Avenue, City of Linden, Union County, New Jersey, Block 586, Lot 6

**Applicant: ExxonMobil Environmental and Property Solutions**

Dear Interested Party:

This letter is to provide you with legal notification that an application for Letter of Interpretation (LOI) has been submitted to the New Jersey Department of Environmental Protection (NJDEP), Division of Land Use Regulation for the site shown on the enclosed plan. A brief description of the proposed project follows:

A wetland delineation was performed on Block 586, Lot 6 within the Bayway Refinery Complex. As part of the NJDEP's review of the LOI application, NJDEP personnel may visit the property, and the portion of any neighboring property that lies within 150 feet of the property line, to perform a site inspection and verify the location of any wetlands. This site inspection will involve only a visual inspection and possibly minor soil borings using a 4" diameter hand auger. The inspection will not result in any damage to vegetation or to property improvements.

The complete permit application package can be reviewed at the municipal clerk's office in the municipality in which the site subject to the application is located or by appointment at the Department's Trenton Office. In addition, an electronic copy of the initial application can be provided via an OPRA request by contacting <https://www.nj.gov/dep/opra/opraform.html> from the Department's Trenton Office. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site. Please submit your written comments within 45 calendar days of receiving this letter to:

New Jersey Department of Environmental Protection  
Division of Land Use Regulation  
P.O. Box 420, Code 501-02A  
Trenton, New Jersey 08625  
Attn: City of Linden Supervisor

If you have questions about the application, you can contact me at the address below.

Sincerely,

A handwritten signature in black ink that reads "Nicole E. Joy". The signature is written in a cursive, flowing style.

Nicole Joy  
Project Engineer  
Agent for ExxonMobil Environmental and Property Solutions

Applicant:  
ExxonMobil Environmental and Property Solutions  
1400 Park Avenue, Building 7  
Linden, NJ 07036



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

200

100

0

200

Feet

IAOC Property

Property Line


Wetlands Transition Area

Exceptional Wetland

Intermediate Wetland

Ordinary Wetland

Water



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www.kleinfelder.com

PROJECT NO.	20192932
DRAWN:	July2019
DRAWN BY:	EJL
CHECKED BY:	NEJ
FILE NAME:	EMES_BRC_C2_Wtlnds.mxd

Wetlands Map

BAYWAY REFINERY COMPLEX  
LINDEN, NEW JERSEY

Figure  
**5**

The information included on this graphic representation has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a land survey product nor is it designed or intended as a construction design document. The use or misuse of the information contained on this graphic representation is at the sole risk of the party using or misusing the information.

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Certified Mail Fee \$ 3.60 Extra Services & Fees (check box, add fee if appropriate) <input type="checkbox"/> Return Receipt (hardcopy) \$ 2.85 <input type="checkbox"/> Return Receipt (electronic) \$ <input type="checkbox"/> Certified Mail Restricted Delivery \$ <input type="checkbox"/> Adult Signature Required \$ <input type="checkbox"/> Adult Signature Restricted Delivery \$	Postmark Here
Postage \$ 0.51 Total Postage and Fees \$ 6.96	
Sent To <b>PSEG Power/Fossil LLC - Tax Dept</b> Street and Apt. No. <b>80 Park Place T-6B</b> <b>Newark, NJ 07102</b> City, State, Zip+4®	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

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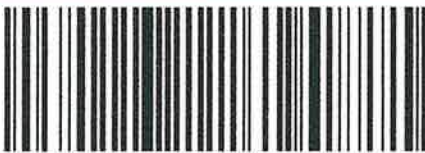
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Certified Mail Fee \$ 3.60 Extra Services & Fees (check box, add fee if appropriate) <input type="checkbox"/> Return Receipt (hardcopy) \$ 2.85 <input type="checkbox"/> Return Receipt (electronic) \$ <input type="checkbox"/> Certified Mail Restricted Delivery \$ <input type="checkbox"/> Adult Signature Required \$ <input type="checkbox"/> Adult Signature Restricted Delivery \$	Postmark Here
Postage \$ 0.51 Total Postage and Fees \$ 6.96	
Sent To <b>Phillips 66 Co - Property Tax S1364</b> Street and Apt. No. <b>2333 West Boulevard</b> <b>Houston, TX 77042</b> City, State, Zip+4®	
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Certified Mail Fee \$ 3.60 Extra Services & Fees (check box, add fee if appropriate) <input type="checkbox"/> Return Receipt (hardcopy) \$ 2.85 <input type="checkbox"/> Return Receipt (electronic) \$ <input type="checkbox"/> Certified Mail Restricted Delivery \$ <input type="checkbox"/> Adult Signature Required \$ <input type="checkbox"/> Adult Signature Restricted Delivery \$	Postmark Here
Postage \$ 0.51 Total Postage and Fees \$ 6.96	
Sent To <b>Texas Eastern Trans Corp</b> Street and Apt. No. <b>Buff &amp; Phelps</b> <b>P.O. Box 2629</b> <b>Addison, TX 75001</b> City, State, Zip+4®	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

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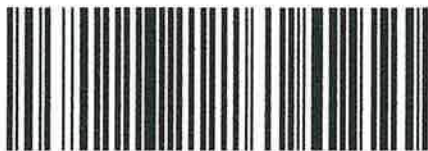
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Certified Mail Fee \$ 3.60 Extra Services & Fees (check box, add fee if appropriate) <input type="checkbox"/> Return Receipt (hardcopy) \$ 2.85 <input type="checkbox"/> Return Receipt (electronic) \$ <input type="checkbox"/> Certified Mail Restricted Delivery \$ <input type="checkbox"/> Adult Signature Required \$ <input type="checkbox"/> Adult Signature Restricted Delivery \$	Postmark Here
Postage \$ 0.51 Total Postage and Fees \$ 6.96	
Sent To <b>Conrail c/o Prop Tax Dept</b> Street and Apt. No. <b>P.O. Box 8499</b> <b>Philadelphia, PA 19101</b> City, State, Zip+4®	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

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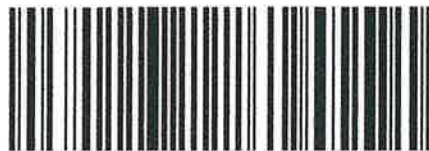
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<b>Sent To</b> Michael F. Stonac Street and Apt. No. Manager, Engineering Design One Elizabethtown Plaza, 3rd Fl. East City, State, ZIP+4® Union, NJ 07083 PS Form 3800, April 2013 PSN 7530-02-000-9047 See Reverse for Instructions		

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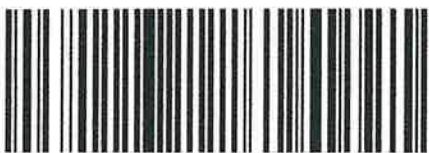
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Total Postage and Fees \$ 6.96	Sent To Comcast Cable 800 Rahway Avenue Union, NJ 07083 City, State, ZIP+4®	

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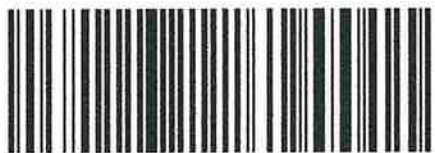
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Postage \$ 0.51	Postmark Here	
Total Postage and Fees \$ 6.96	Sent To Verizon c/o Thomas Grabowski 445 Georges Road North Brunswick, NJ 08902 City, State, ZIP+4®	

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Postage \$ 0.51	Postmark Here	
Total Postage and Fees \$ 6.96	Sent To Sunoco Pipeline L.P. Robert May Dept. Montello Complex 525 Fritztown Road Sinking Spring, PA 19608 City, State, ZIP+4®	

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Postage \$ 0.51	Postmark Here	
Total Postage and Fees \$ 6.96	Sent To Sun Pipe Line Company Robert May Dept 26th Floor 1801 Market Street Philadelphia, PA 19103-1899 City, State, ZIP+4®	

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☐ Certified Mail Restricted Delivery \$ \_\_\_\_\_

☐ Adult Signature Required \$ \_\_\_\_\_

☐ Adult Signature Restricted Delivery \$ \_\_\_\_\_

Postage

\$ 0.51

**Total Postage and Fees**

\$ 6.96

Postmark  
Here

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N.J. Department of Environmental

Protection

Street and Apt. No., PO Box, or

CN 402

City, State, ZIP+4® Trenton, NJ 08625

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions

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Mary Purves

Street and Apt. No.,  
City HallCity, State, ZIP+4® 301 North Wood Avenue  
Linden NJ 07036

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☐ Adult Signature Required \$  
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\$ 0.51Total Postage and Fees  
\$ 6.96

Sent To

Dorothy Kotowski, Secretary

Street and Apt. No.,  
Linden Planning Board  
City Hall, 2nd FloorCity, State, ZIP+4® 301 North Wood Avenue  
Linden NJ 07036

PS Form 3800, April 2015 PSN 7530-02-000-9047

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☐ Certified Mail Restricted Delivery \$  
☐ Adult Signature Required \$  
☐ Adult Signature Restricted Delivery \$Postmark  
HerePostage  
\$ 0.51Total Postage and Fees  
\$ 6.96

Sent To

Mark Riliacco

Street and Apt. No.,  
Linden Construction Official  
City Hall, Room 204, 3rd FloorCity, State, ZIP+4® 301 North Wood Avenue  
Linden NJ 07036

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☐ Adult Signature Required \$  
☐ Adult Signature Restricted Delivery \$Postmark  
HerePostage  
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\$ 6.96

Sent To

Kamal Saleh

Street and Apt. No.,  
Cherokee County Bureau of Planning  
and Economic Development  
Administration Building, 2nd FloorCity, State, ZIP+4® 10 Elizabethtown Plaza  
Linden NJ 07036

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions



MICHAEL FRANGELLA  
TAX ASSESSOR

# City of Linden

Union County, New Jersey

TAX ASSESSORS

City Hall - 301 No. Wood Avenue  
Linden, New Jersey 07036

(908) 474-8544

November 24, 2020

Michael Jenkins  
150 College Rd W. Suite 100  
Princeton, NJ 08540

RE: Block 586, Lot 6

Dear Sir/Madam:

As per your request dated November 19, 2020, I am furnishing you with a certified list of property owners in Linden located within the 200' radius of the above subject property.

Thank you.

Very truly yours,

Michael Frangella  
Tax Assessor

MF:jr  
Encls.

# OWNER & ADDRESS REPORT

11/24/20 Page 1

LINDEN

MICHAEL J. JENKINS  
BLOCK 586 LOT 6

BLOCK	LOT	QUAL	CLA	PROPERTY OWNER	PROPERTY LOCATION	Add'l Lots
586	5		4B	PHILLIPS 66 CO - PROPERTY TAX S1364 2331 CITY WEST BLVD +HOUSTON, TX 77042	DOCK PROPERTY	460, 61, 63
586	7.01		4B	PSEG POWER/FOSSIL LLC - TAX DEPT 80 PARK PLACE T-6B +NEWARK, NJ 07102	LOT ON ARTHUR KILL RIVER	460,37J,37K3
586	10		5B	CONRAIL C/O PROP TAX DEPT PO BOX 8499 PHILADELPHIA, PA 19101	BTWN CRR & TREMLEY PT RD	460, 68-A
586	16.01		4B	PSEG POWER/FOSSIL LLC - TAX DEPT 80 PARK PLACE T-6B +NEWARK, NJ 07102	SNG PLANT	460,43/54A,56A,ETC
586	16.01	BLDG	4B	TEXAS EASTERN TRANS CORP DUFF & PHELPS POB 2629 +ADDISON, TX 75001	METER STATION NO 128	
586	17		4B	PHILLIPS 66 CO - PROPERTY TAX S1364 2331 CITY WEST BLVD +HOUSTON, TX 77042	WATERFRONT TANK FIELD	460,37L1,51B,54B,ETC

EASEMENT	Michael F. Stonac, Manager engineering Design One Elizabethtown Plaza, 3 <sup>rd</sup> Fl. East Union, New Jersey 07083
EASEMENT	Donna Short GIS Supervisor New Jersey-American Water Company, Inc. 1025 Laurel Oak Road Voorhees, New Jersey 08043
EASEMENT	Public Services Electric & Gas Company Manager-Corporation Properties 80 Park Plaza T6B Newark, New Jersey 07102
EASEMENT	Elizabethtown Gas Company Greg Balint 520 Green Lane Union, New Jersey 07083
EASEMENT	Verizon c/o Thomas Grabowski 445 Georges Road, North Brunswick, NJ 08902
EASEMENT	Comcast Cable 800 Rahway Avenue, Union, New Jersey 07083
EASEMENT	Sun Pipe Line Company Right of Way Dept-26 <sup>th</sup> Floor 1801 Market Street Philadelphia, PA 19103-1699
EASEMENT	Sunoco Pipeline L.P. Right of Way Dept. Montello Complex 525 Fritztown Road Sinking Spring, PA 19608
N.J. D.E.P	N.J. Department of Environmental Protection CN 402, Trenton, New Jersey 08625

**LIST CERTIFIED TO BE AN ABSTRACT OF TRUE RECORD CONTENT**



February 23, 2021

Joseph C. Bodek, Clerk  
City of Linden  
City Hall, 2<sup>nd</sup> Floor  
301 N. Wood Avenue  
Linden, NJ 07036

**Re: Application for Freshwater Wetlands Letter of Interpretation**  
Investigative Area of Concern (IAOC) C2 – Waterfront Area  
1400 Park Avenue, City of Linden, Union County, New Jersey, Block 586, Lot 6

**Applicant: ExxonMobil Environmental and Property Solutions**

Dear Mr. Bodek:

Enclosed please find a copy of the Freshwater Wetlands Letter of Interpretation (LOI) application which is being submitted to the New Jersey Department of Environmental Protection (NJDEP) for the project described below and further illustrated in the enclosed application materials. You are being provided with this notice because the clerk of the municipality in which the site subject to the application is located is tasked with maintaining a copy of the application on file for review. A brief description of the proposed project follows:

A wetland delineation was performed on Block 586, Lot 6 within the Bayway Refinery Complex. As part of the NJDEP's review of the LOI application, NJDEP personnel may visit the property, and the portion of any neighboring property that lies within 150 feet of the property line, to perform a site inspection and verify the location of any wetlands. This site inspection will involve only a visual inspection and possibly minor soil borings using a 4" diameter hand auger. The inspection will not result in any damage to vegetation or to property improvements.

The complete permit application package can be reviewed at the municipal clerk's office in the municipality in which the site subject to the application is located or by appointment at the Department's Trenton Office. In addition, an electronic copy of the initial application can be provided via an OPRA request by contacting <https://www.nj.gov/dep/opra/opraform.html> from the Department's Trenton Office. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site. Please submit your written comments within 45 calendar days of receiving this letter to:

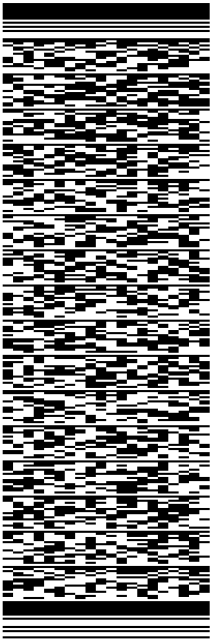
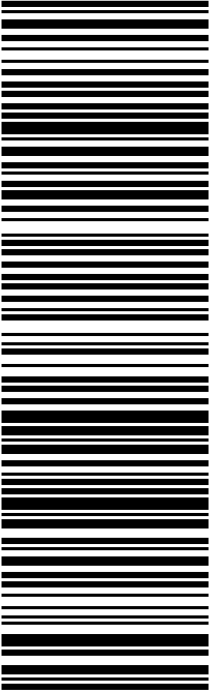
New Jersey Department of Environmental Protection  
Division of Land Use Regulation  
P.O. Box 420, Code 501-02A  
Trenton, New Jersey 08625  
Attn: City of Linden Supervisor

If you have questions about the application, you can contact me at the address below.

Sincerely,

A handwritten signature in black ink that reads "Nicole E. Joy". The signature is written in a cursive, flowing style.

Nicole Joy  
Project Engineer  
Agent for ExxonMobil Environmental and Property Solutions

ORIGIN ID: PPIA (609) 924-8821 NICOLE JOY KLEINFELDER 150 COLLEGE ROAD WEST, SUITE 100 PRINCETON, NJ 08540 UNITED STATES US		SHIP DATE: 24FEB21 ACTWGT: 4.00 LB CAD: 251970891/INET4340
<b>TO JOSEPH C. BODEK</b> <b>CITY OF LINDEN</b> <b>301 N WOOD AVE</b>		<b>BILL SENDER</b>
<b>LINDEN NJ 07036</b> (908) 474-8452 INV. COPIES OF LOI APPLICATIONS PO. NICOLE JOY REF: 20192832.001A.03-0447 DEPT: 20213095 & 20213158 (T05-0001)		
 		
TRK# 7729 8946 1710 0201	<b>E2 KBCA</b> NJ-US EWR 07036	THU - 25 FEB 10:30A PRIORITY OVERNIGHT
		

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***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



## **APPLICATION FEE**

12197

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SAN DIEGO, CA 92101DATE 2/9/21

19-10/1250

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ORDER OFTreasurer State of New Jersey\$ 2,800<sup>00</sup>/<sub>100</sub>Two Thousand Eight Hundred Dollars <sup>00</sup>/<sub>100</sub>

DOLLARS

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Details on Back**usbank.**FOR 20213158Barbara Walden

MP

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***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



**COLOR PHOTOGRAPHS**



**Photo 1:**  
View looking  
south at the  
southern  
portion of  
Wetland A  
(12/20/17).



**Photo 2:**  
View looking  
north at the  
open water  
area within  
Wetland B  
(12/20/17).



**Photo 3:**  
Typical non-hydric soil profile with artifacts in adjacent spoil pile (11/14/17).



**Photo 4:**  
View looking northeast at the northern portion of Wetland A (11/14/17)



**Photo 5:**  
View looking  
south at  
Wetland C  
(12/21/17).



**Photo 6:**  
View looking  
south along  
the existing  
road adjacent  
to Wetland A  
(1/28/18).



**Photo 7:**  
View looking  
northeast at  
the existing  
waterfront  
berm between  
Wetland B  
and the Arthur  
Kill  
(12/20/17).

***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



## **WETLANDS SUMMARY REPORT**

**APPLICATION FOR  
NJDEP LETTER OF INTERPRETATION  
REGULATORY LINE VERIFICATION**

**For**

**Block 586, Lot 6  
Bayway Refinery Complex**

Park Avenue and Brunswick Avenue  
City of Linden  
Union County, New Jersey

February 2021

Prepared For:  
ExxonMobil Environmental and Property Solutions  
1400 Park Avenue, Building 7  
Linden, NJ 07036

Prepared By:  
Amy S. Greene Environmental Consultants, Inc.  
4 Walter E. Foran Boulevard, Suite 209  
Flemington, NJ 08822

**SITE INFORMATION SHEET**

Acreage:	Approx. 17.10 acres
Legal Designation:	Bayway Refinery Complex Block 586, Lot 6 Park Avenue and Brunswick Avenue City of Linden, Union County, New Jersey
Applicant:	ExxonMobil Environmental and Property Solutions 1400 Park Avenue, Building 7 Linden, NJ 07036 Attn: Maureen P. Forlenza
Owner:	Phillips 66 1400 Park Avenue Linden, NJ 07036
NJ State Plane Coordinates for Approx. center of site:	North: 652,540 ft / East: 573,411ft
USGS Quadrangle:	Elizabeth NJ/NY and Arthur Kill NY/NJ
Soil Mapping:	Soil Survey Geographic (SSURGO) Database, Union County, New Jersey USDA, Natural Resource Conservation Service Fort Worth, Texas, 2017
Nearest Waterway:	Arthur Kill
Subdrainage Basin:	Morses Creek and UNT
Drainage Basin:	Arthur Kill
Water Quality Classification:	Arthur Kill – SE3 Morses Creek - FW2-NT/SE3 Piles Creek UNT – SE3
EPA Priority Wetlands:	No

## **WETLANDS INVESTIGATION SUMMARY**

### **I. SITE DESCRIPTION**

The Bayway Refinery Complex (BRC) is an active, 1,300-acre industrial facility located in an industrial area within the City of Linden, Union County, New Jersey. It consists of the main petroleum refining facility, a petrochemical manufacturing facility, tankfields, a fuel-distribution terminal, process areas, chemical plants, mechanical shops, wastewater treatment units, offices, pipelines, railroad sidings, and tanker docks. The BRC occupies a low-lying area adjacent to the Arthur Kill. It is bounded to the north by U.S. Route 1, Interstate 278, and Park Avenue; to the west by two cemeteries and U.S. Route 1; and to the south by Wood Avenue. The New Jersey Turnpike passes through the facility, separating the main refinery and process area from the waterfront area, which borders the Arthur Kill.

According to historical aerial photography and maps, the entire BRC was formerly tidal marsh associated with the Arthur Kill and both Morses and Piles Creeks. The project area subject to this Letter of Interpretation (LOI) request is located on the eastern side of the BRC, outside of the process areas, on Block 586, Lot 6 (approx. 17.10 acres). Lot 6 encompasses a large portion of the Waterfront Area (known as Investigative Area of Concern [IAOC] C2), as well as a portion of the Arthur Kill.

An access road and abandoned rail line occur along the western limits of Lot 6, separating it from Lot 17. Lot 6 is bordered by Block 586, Lot 5 to the north (which encompasses most of IAOC C3), Block 586, Lot 7.01 (under separate ownership) to the south (see Site Figures), and the Arthur Kill to the east. The Arthur Kill is classified as a saline estuarine-3 waterway.

According to existing information and historic aerial photography, the area within Lot 6 was originally tidal marsh. The NJDEP and U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) map palustrine emergent wetlands and excavated/impounded waterbodies as occurring within Lot 6.

A wetland delineation survey was previously performed for Lot 6, as well as the surrounding parcels, as part of the 2010 NJDEP Regulatory Line Verification Letter of Interpretation for the BRC and in support of proposed remediation activities proposed for the IAOC C1 and C2 areas. This LOI was updated and renewed on September 21, 2016 (DLUR File No. 2009-14-0002.4). The LOI confirmed the presence of intermediate resource value wetlands and exceptional resource value wetlands in Lot 6.

ASGECI performed a new field delineation of wetlands within Lot 6, initially for the purpose of submitting a request to the U.S. Army Corps of Engineers (USACE) to determine the extent of USACE jurisdiction under the *Federal Clean Water Act* and to predict the associated anticipated wetland mitigation requirements for site remediation. The USACE retains jurisdiction over wetlands within 1,000 feet of tidal waters. The ASGECI delineation resulted in a smaller area of wetlands within IAOC C2 than the previous delineation that was submitted to and approved by the NJDEP in the LOI. Therefore, a new LOI from the NJDEP is being requested for the entirety of Block 586, Lot 6.

ASGECI's initial delineation, performed on December 20-21, 2017, and January 24, 2018, included the entirety of Block 586, Lot 6 (including the entirety of IAOC C2). Based on the results

of this wetlands delineation, a total of 2.916 acres of wetlands were identified and delineated within the lot. The wetlands identified in Lot 6 appear hydrologically isolated from the surrounding waterbodies (i.e. Morses Creek and Arthur Kill) and are non-tidal.

Based on a review of aerial photography and field reconnaissance, Lot 6 has level areas and concave depressions that collect localized runoff from the surrounding areas, access roads, and compacted dirt/gravel staging areas. The frequency and duration of the surface water appears to be limited. The findings of this wetlands delineation are described in detail in Section II below.

## **II. WETLAND DELINEATION**

A review of existing mapping sources and multiple field investigations were conducted to determine the extent of wetlands and State open waters on the subject lot. Mapping sources reviewed included Union County Soil Survey, U.S. Fish and Wildlife Service NWI Maps, and the NJDEP Freshwater Wetland Maps. ASGECI delineated the entirety of Lot 6 (which encompasses IAOC C2) on December 20 and 21, 2017, and January 24, 2018. The delineation was performed utilizing methodologies outlined in *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (Federal Interagency Committee for Wetland Delineation 1989) in accordance with the *NJ Freshwater Wetlands Protection Act Rules* (N.J.A.C. 7:7A). Because portions of the site lie within 1,000 feet of the ordinary high-water mark of the Arthur Kill and are subject to USACE jurisdiction, the delineation also included the use of USACE methodologies outlined in the *1987 U.S. Army Corps of Engineers Manual for Delineating Jurisdictional Wetlands* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (version 2.0)* as required by the USACE.

Block 586, Lot 6 is located within an active industrial facility. The parcel has a long history of disturbance dating back to the 1930s and 1940s, when waste materials were deposited within the existing tidal wetlands. Therefore, the subject lot represents an atypical situation and both the soils and hydrology are disturbed and problematic. In accordance with USACE guidance, “wetland determinations on difficult or problematic sites must be based on the best information available to the field investigator.” All wetlands delineated with the project area constitute an atypical situation in which the professional judgment of the investigator is more important than any individual data on soils, vegetation and hydrology. The best information available to guide the wetland determination was primarily the vegetation and the hydrology. Due to the origin and heterogeneity of the soil material within the project area, published field indicators of hydric soils (USDA, 2016) were not well suited for application at the site. However, redoximorphic soil features (i.e. matrix depletions and concentrations) were identified within some areas of the delineated wetlands and were used to guide the wetland identification.

Palustrine emergent and scrub-shrub wetlands were identified on Lot 6. In accordance with the methodologies described above, areas which contained hydrophytic vegetation, hydric soils, and wetland hydrology were identified as wetlands.

Wetlands were identified as follows (see Wetland Location Survey):

**Wetland A (A1-A42)** is an approx. 1.664-acre palustrine emergent wetland located in a depression within the southern portion of IAOC C2. The feature appears to occur entirely onsite.

**Wetland B (B1-B13)** is an approx. 0.397-acre palustrine scrub-shrub wetland located in a depression within IAOC C2. It is immediately northeast of Wetland A, but the two features are separated by a narrow tree line. The feature appears to occur entirely onsite.

**Wetland C (C1-C18)** is an approx. 0.855-acre palustrine emergent wetland fringe located primarily along the western portion of IAOC C2. It occurs in a depression along the southwestern edge of the parcel, within existing railroad tracks. Wetland C ties into a wetland feature on a neighboring lot.

With the exception the Arthur Kill (which falls within the eastern portion of Lot 6), no permanent surface water features are located within the parcel. Intermittent ponding occurs within Lot 6 as a result of heavy precipitation and limited drainage (see soils and hydrology discussion below).

The limits of the delineated wetlands described above are generally consistent with those subject to the previously-issued LOI for the site, though the following changes were made:

- Former Wetland CW2 was reduced and separated into smaller wetlands, including Wetland C.
- Former Wetland CW1, located in Lot 6, was reduced and separated into smaller wetlands, including Wetland A and Wetland B.

#### A. Vegetation

##### *Wetlands*

Much of the delineated wetlands are vegetated with common reed (*Phragmites australis*, FACW), an invasive species that frequently colonizes disturbed areas. Wetland A is dominated by common reed and switchgrass (*Panicum virgatum*, FAC), with some sapling sweetgum (*Liquidambar styraciflua*, FAC).

Dominant vegetation within Wetland B includes groundseltree (*Baccharis halimifolia*, FACW), northern bayberry (*Morella pennsylvanica*, FAC), switchgrass, and common reed. Small numbers of red maple (*Acer rubrum*, FAC) were also observed. Wetland C contains broadleaf cattail (*Typha latifolia*, OBL), common three square (*Scirpus pungens*, OBL), and switchgrass.

These vegetation communities were determined to be hydrophytic, using the methodology described for hydrophytic vegetation in the 1989 Manual.

##### *Uplands*

The upland areas adjacent to the delineated wetlands vary across the lot and include forested, scrub-shrub, and herbaceous communities. Hard-packed dirt and gravel access roads and staging areas occur throughout the lot and are sparsely vegetated. The forested upland associated with Wetlands A and B contain bigtooth aspen (*Populus grandidentata*, FACU), gray birch (*Betula populifolia*, FAC), sweetgum, winged sumac (*Rhus coppalinum*, UPL), and switchgrass. An area of herbaceous upland also occurs along Wetland A; this is dominated by common reed. The upland associated with Wetland C is dominated by common reed, groundseltree, and switchgrass.

Some of the sampled upland areas met the requirements in the 1989 Manual for hydrophytic vegetation (see Sampling Station Wetland Determination Data Forms); however, these areas lack the hydric soils and wetland hydrology required to be designated as wetlands.

**B.     Soils**

The Soil Survey Geographic database (SSURGO) for New Jersey identifies two (2) soil mapping units across IAOC C2 (see Soils Map). The majority of the area is characterized by Udorthents, organic substratum, 0 to 8 percent slopes (UdoB). According to the Union County Soil Survey (2002), this unit is well-drained and consists of areas along the Arthur Kill, where various types of material have been used to fill tidal marsh. The fill within IAOC C2 consists of a variety of materials, including grayish-black clayey silt with intermixed construction debris (such as concrete, wood, and bricks), reworked glacial till, gravel, cinders, slag, and localized relocated peat material. The fill is up to 10 feet thick and often contains perched ground water. Urban land (UR) soil is another unit mapped as occurring within the C-Unit Landfill Area, though it is limited to the southwestern corner of IAOC C2 within Lot 6. This unit is commonly associated with areas covered by asphalt, concrete, buildings, and other impervious surfaces. Wetlands occur within both mapped soil units.

The characteristics of both wetland and upland soils onsite are mostly consistent with the UdoB soil unit. Most of the sampled areas contain hard-packed anthropogenic fill materials, which include silt, sand, and sandy clay loam. Artifacts such as gravel, brick, and concrete were found in soil samples throughout the site.

Although disturbed, the delineated wetlands contained distinct indicators of hydric soils; the depleted matrix and redox dark surface indicators were the mostly commonly observed. Upland soils lacked these characteristics.

**C.     Hydrology**

Several indicators of wetland hydrology were observed during the field investigation. These included soil saturation, a high water table, inundation and saturation that is visible from aerial imagery, and a sparsely vegetated concave surface, among others. Surface water was observed in many of the delineated wetlands, mostly the result of stormwater accumulating in depressions underlain by hard-packed, almost impenetrable fill.

No manmade drainage features conveying water in or out of the wetlands were observed. Although tidal waters occur adjacent to IAOC C2, none of the delineated features appear to be tidal and most appear to be isolated, contained within manmade berms and fill areas.

**III. WETLANDS RESOURCE VALUE CLASSIFICATION**

Wetlands are classified according to their resource value as designated by the NJ *Freshwater Wetlands Protection Act Rules* (N.J.A.C. 7:7A) and are subject to transition areas based upon this classification. Wetlands of exceptional resource value are defined by the State of New Jersey as freshwater wetlands which discharge into FW1 waters and FW2-TP (trout production) waters or which are documented habitats for endangered or threatened species (N.J.A.C. 7:7A-2.5). Wetlands of ordinary resource value include ditches, swales, detention facilities, and certain isolated wetlands that are less than 5,000 square feet in size and have disturbed land surrounding

50 percent of the area immediately adjacent to it. Wetlands that do not fit either of the above classifications are defined as intermediate resource value. Exceptional resource value wetlands are subject to a 150-foot standard transition area. Wetlands of intermediate resource value are subject to a 50-foot standard transition area. No transition area is required for ordinary resource value wetlands (N.J.A.C. 7:7A-6). In addition, State open waters are not subject to transition areas.

There are no FW1 or trout production waters on the property. However, the NJ Landscape Project (V.3.3) maps a significant portion of the property as potential habitat for State-endangered and State-threatened species, including the following:

- Bald eagle (*Haliaeetus leucocephalus*, State-endangered [breeding])- Nesting and foraging habitat
- Black-crowned night heron (*Nycticorax nycticorax*, State-threatened [breeding])- Foraging habitat
- Cattle egret (*Bubulcus ibis*, State-threatened [breeding])- Foraging habitat
- Least tern (*Sterna antillarum*, State-endangered)- Foraging habitat
- Yellow-crowned night heron (*Nyctanassa violacea*- State-threatened [breeding])- Foraging habitat

In addition, the NJDEP Landscape Project identifies potentially suitable habitat for two federally-listed fish species within the Arthur Kill, located within the eastern portion of Lot 6. These species include:

- Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)- Migration corridor- adult sighting
- Shortnose sturgeon (*Acipenser brevirostrum*)- Migration corridor- adult sighting

The endangered and nongame species program issued a letter on April 19, 2016, stating that the bald eagle nest on site is no longer active, and the new nest location is over two miles away from proposed work areas.

Although the size and configuration of the 2018-delineated wetlands differs from the previous delineation, the overall condition of the site has not significantly changed, and it is anticipated that each wetland will retain its previously-designated resource value classification.

#### IV. EPA PRIORITY WETLANDS

Wetlands located within certain geographic regions throughout the State of New Jersey are classified as EPA Priority Wetlands. The USEPA has developed a listing of Priority Wetlands for the State of New Jersey (USEPA, 1994). In general, this list recognizes those areas identified by various federal, state, and private contributors, which are considered to be the most important and vulnerable wetlands in the state. Permitted activities within wetlands included on the EPA list are subject to certain limitations.

IAOC C2 is not located within an area designated as EPA Priority Wetlands.

## **V. SUMMARY**

Palustrine emergent and scrub-shrub wetlands were identified in Lot 6. All delineated wetlands appear to be the result of stormwater runoff from the surrounding area, which accumulates in depressions onsite. Because these depressions are underlain with hard-packed fill, the stormwater fails to drain, resulting in the formation of hydric soils and the growth of hydrophytic vegetation characteristic of wetlands. Due to the disturbed, artificial conditions encountered onsite, published field indicators of hydric soils (USDA, 2016) were not well suited for application within portions of the project area. In accordance with USACE and NJDEP guidance for atypical situations, ASGECI delineators used the best information available onsite, primarily the vegetation and hydrology, to determine to presence and extent of wetlands.

No permanent surface water bodies occur onsite. Arthur Kill, a saline estuarine 3 waterway, flows along the eastern edge of Lot 6. Although the tidal waterway occurs immediately adjacent to the subject parcels, none of the delineated wetland features appear to be tidal; several show no hydrological connection – natural or man-made – to the Arthur Kill.

Adjacent upland areas contain similarly disturbed, anthropogenic soils and hydrophytic vegetation dominated some of the sampled locations; however, these areas lacked hydric soil indicators and wetland hydrology.

With some exceptions, onsite wetlands were generally similar in size and configuration to the previously-delineated wetlands subject to the LOI issued for the site on September 21, 2016. Previously-delineated wetlands were reduced in size or separated into multiple, smaller features.

It is anticipated that despite these changes, the wetlands delineated in 2018 will retain their previously-designated resource values: Previously-delineated wetlands within Lot 6 would be designated as intermediate resource value. The NJDEP will make the final determinations on all wetland boundaries and resource value classifications.

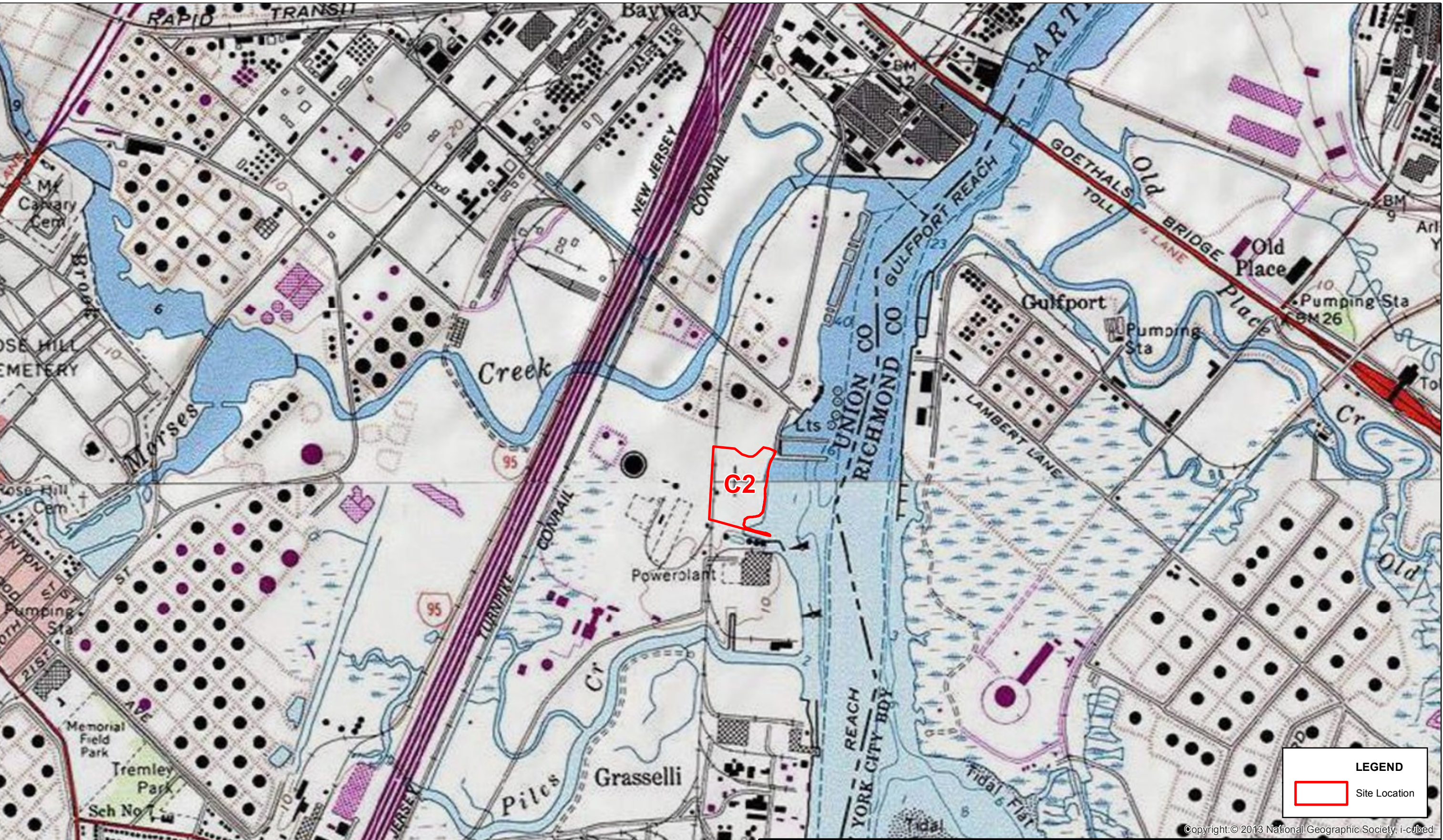
***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



## **SITE FIGURES**

USGS Site Location Map  
Aerial Photograph Site Location Map  
Tax Map  
US Soils Conservation Map  
Wetlands Map

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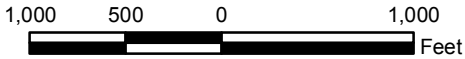
LEGEND

Site Location

Copyright: © 2013 National Geographic Society, i-cubed

SOURCE:  
1. ELIZABETH, NJ-NY (1995) & ARTHUR KILL, NY-NJ (1996)  
(PHOTOREVISED 1981) 7.5 MINUTE SERIES (TOPOGRAPHIC).

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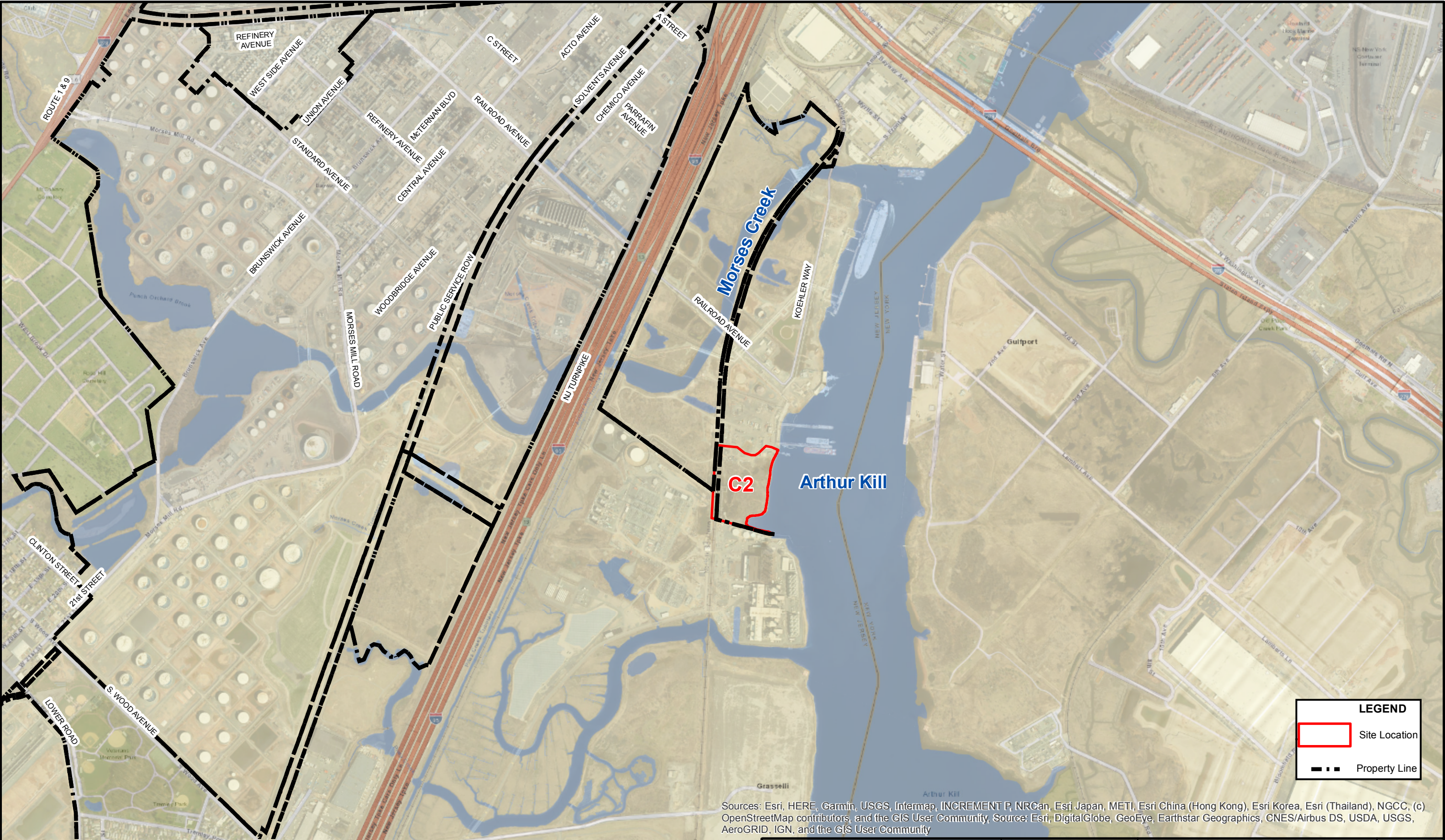


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FILE NAME:	XOM_Bayway_C2_USGS.mxd

<b>USGS Site Location Map</b>	FIGURE <b>1</b>
BAYWAY REFINERY COMPLEX LINDEN, NEW JERSEY	

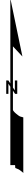
\\lazqisstor01\GIS Projects\Client\ExxonMobil\NJ Bayway\GIS\Bayway MXDs\C2\XOM Bayway C2 AerialMap.mxd.mxd



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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1,000 500 0 1,000 Feet



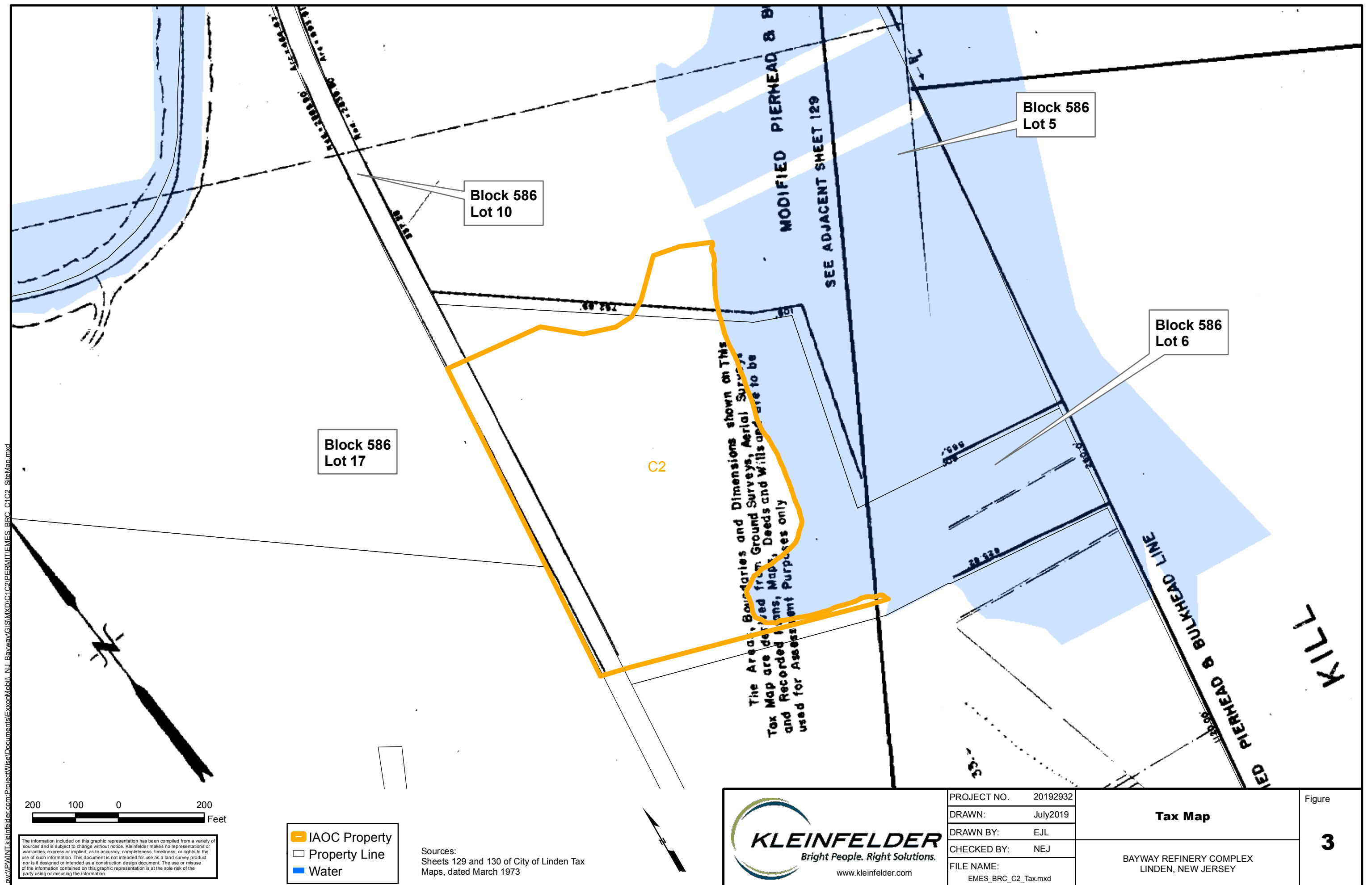
PROJECT NO.	20192932
DRAWN:	July2019
DRAWN BY:	EJL
CHECKED BY:	NEJ
FILE NAME:	XOM_Bayway_C2_AerialMap.mxd

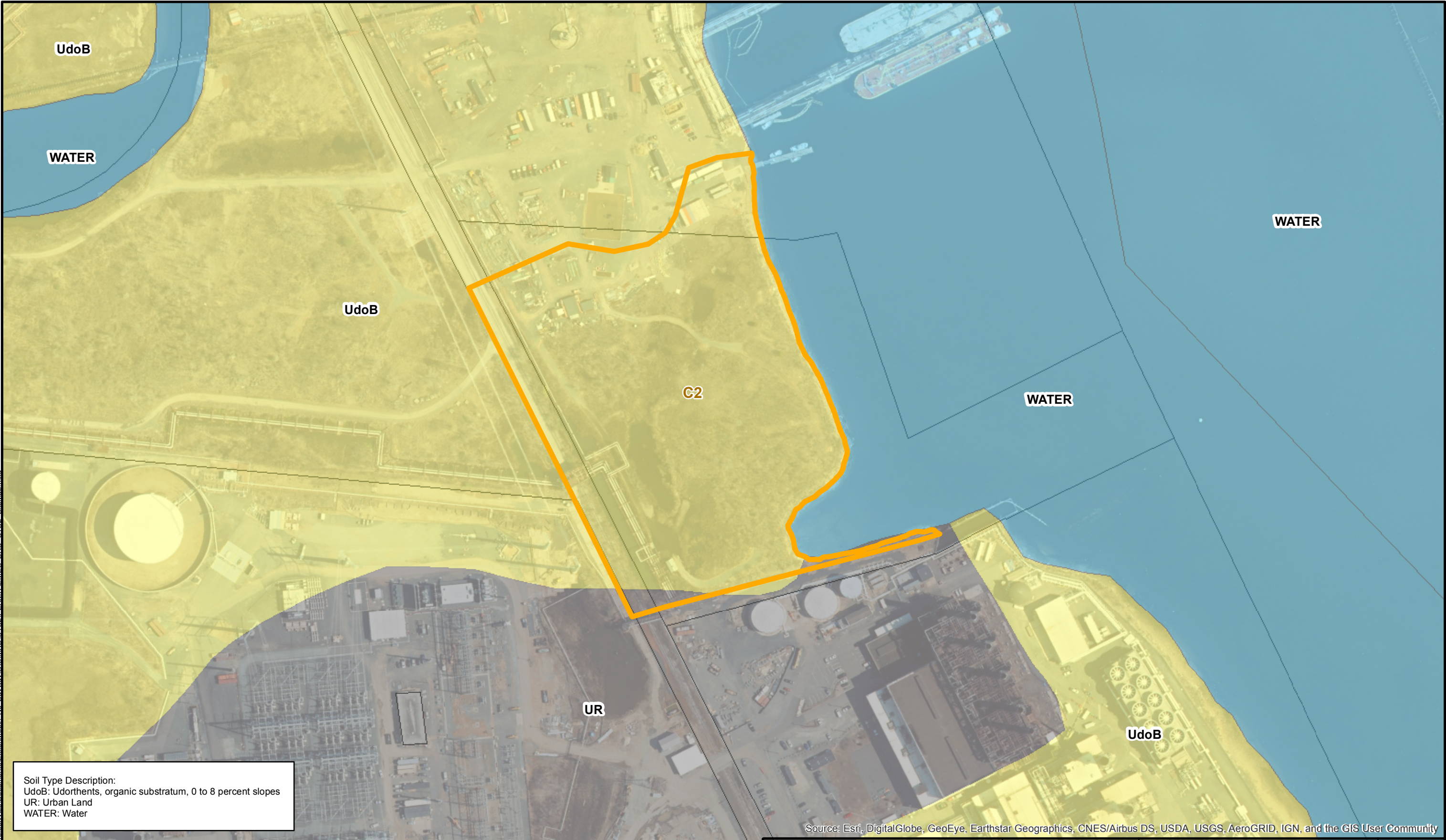
### Aerial Photograph Site Location Map

BAYWAY REFINERY COMPLEX  
LINDEN, NEW JERSEY

FIGURE

2





Soil Type Description:  
UdoB: Udorthents, organic substratum, 0 to 8 percent slopes  
UR: Urban Land  
WATER: Water

200 100 0 200  
Feet

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IAOC Property  
Property Line  
Hydrologic Soil Group  
D  
Urban  
Water

Sources:  
USDA Web Soil Survey



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DRAWN:	July2019
DRAWN BY:	EJL
CHECKED BY:	NEJ
FILE NAME:	EMES_BRC_C2_Soils.mxd

**US Soils Conservation Service  
Map**

BAYWAY REFINERY COMPLEX  
LINDEN, NEW JERSEY

Figure

**4**



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

200

100

0

200

Feet

IAOC Property

Property Line


Wetlands Transition Area

Exceptional Wetland

Intermediate Wetland

Ordinary Wetland

Water



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FILE NAME:	EMES_BRC_C2_Wtlnds.mxd

Wetlands Map

BAYWAY REFINERY COMPLEX  
LINDEN, NEW JERSEY

Figure  
**5**

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***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



**SAMPLING STATION WETLAND DETERMINATION DATA FORMS**

# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: RAYWAY #1/2 City/County: UNION, UNION Sampling Date: 12/20/17  
 Applicant/Owner: EXON MOBIL / P66 State: MD Sampling Point: C2SB3  
 Investigator(s): D. FOLLESE Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): FILL PLAIN Local relief (concave, convex, none): CONCAVE  
 Slope (%): <1% Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: UDORTNENTS NWI classification: PEMIR  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ☒  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	If yes, optional Wetland Site ID: <u>PEM</u>
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: (Explain alternative procedures here or in a separate report.)	

## HYDROLOGY

### Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)  
☐ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or Crust (B4)  
☐ Iron Deposits (B5)  
☒ Inundation Visible on Aerial Imagery (B7)  
☐ Sparsely Vegetated Concave Surface (B8)

- ☐ Water-Stained Leaves (B9)  
☐ Aquatic Fauna (B13)  
☐ Marl Deposits (B15)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres on Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Other (Explain in Remarks)

### Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)  
☐ Drainage Patterns (B10)  
☐ Moss Trim Lines (B16)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☒ Saturation Visible on Aerial Imagery (C9)  
☐ Stunted or Stressed Plants (D1)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☐ Microtopographic Relief (D4)  
☒ FAC-Neutral Test (D5)

### Field Observations:

Surface Water Present? Yes ☒ No \_\_\_\_\_ Depth (inches): 0-4"  
 Water Table Present? Yes ☒ No \_\_\_\_\_ Depth (inches): 0"  
 Saturation Present? Yes ☒ No \_\_\_\_\_ Depth (inches): 0"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No \_\_\_\_\_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

### Remarks:

SAMPLE POINT BETWEEN A7-A8

**VEGETATION** – Use scientific names of plants.

Sampling Point: C2 SB3

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status															
1. _____																		
2. _____																		
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
				<b>Dominance Test worksheet:</b>														
				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)														
				Total Number of Dominant Species Across All Strata: <u>2</u> (B)														
				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)														
				<b>Prevalence Index worksheet:</b>														
				<table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>10</u></td> <td>x 2 = <u>20</u></td> </tr> <tr> <td>FAC species <u>85</u></td> <td>x 3 = <u>255</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>95</u></td> <td>(A) <u>275</u> (B)</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>10</u>	x 2 = <u>20</u>	FAC species <u>85</u>	x 3 = <u>255</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>95</u>	(A) <u>275</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>10</u>	x 2 = <u>20</u>																	
FAC species <u>85</u>	x 3 = <u>255</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>95</u>	(A) <u>275</u> (B)																	
				Prevalence Index = B/A = <u>2.89</u>														
				<b>Hydrophytic Vegetation Indicators:</b>														
				<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation														
				<input checked="" type="checkbox"/> Dominance Test is >50%														
				<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>														
				<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)														
				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)														
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
				<b>Definitions of Vegetation Strata:</b>														
				<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.														
				<b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.														
				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.														
				<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.														
				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>														
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																		
1. <u>LYCOPodium obscurum</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>															
2. _____																		
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
				<u>5</u> = Total Cover														
<b>Herb Stratum (Plot size: _____)</b>																		
1. <u>Panicum virgatum</u>	<u>80%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>															
2. <u>Alopecurus pratensis</u>	<u>10%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>															
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
9. _____																		
10. _____																		
11. _____																		
12. _____																		
				<u>90</u> = Total Cover														
<b>Woody Vine Stratum (Plot size: _____)</b>																		
1. _____																		
2. _____																		
3. _____																		
4. _____																		
				<u>      </u> = Total Cover														
Remarks: (Include photo numbers here or on a separate sheet.)																		

Sampling Point: C2SB3

[illegible]

### Hydric Soil Indicators:

- \_\_\_ Histosol (A1)
- \_\_\_ Histic Epipedon (A2)
- \_\_\_ Black Histic (A3)
- \_\_\_ Hydrogen Sulfide (A4)
- \_\_\_ Stratified Layers (A5)
- \_\_\_ Depleted Below Dark Surface (A11)
- \_\_\_ Thick Dark Surface (A12)
- \_\_\_ Sandy Mucky Mineral (S1)
- \_\_\_ Sandy Gleyed Matrix (S4)
- \_\_\_ Sandy Redox (S5)
- \_\_\_ Stripped Matrix (S6)
- \_\_\_ Dark Surface (S7) (LRR R, MLRA 149B)

- \_\_\_ Polyvalve Below Surface (S8) (LRR R, MLRA 149B)
- \_\_\_ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- \_\_\_ Loamy Mucky Mineral (F1) (LRR K, L)
- \_\_\_ Loamy Gleyed Matrix (F2)
- \_\_\_ Depleted Matrix (F3)
- \_\_\_ Redox Dark Surface (F6)
- \_\_\_ Depleted Dark Surface (F7)
- \_\_\_ Redox Depressions (F8)

### Indicators for Problematic Hydric Soils<sup>3</sup>:

- \_\_\_ 2 cm Muck (A10) (LRR K, L, MLRA 149B)  
 \_\_\_ Coast Prairie Redox (A16) (LRR K, L, R)  
 \_\_\_ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  
 \_\_\_ Dark Surface (S7) (LRR K, L)  
 \_\_\_ Polyvalue Below Surface (S8) (LRR K, L)  
 \_\_\_ Thin Dark Surface (S9) (LRR K, L)  
 \_\_\_ Iron-Manganese Masses (F12) (LRR K, L, R)  
 \_\_\_ Piedmont Floodplain Soils (F19) (MLRA 149B)  
 \_\_\_ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  
 \_\_\_ Red Parent Material (TF2)  
 \_\_\_ Very Shallow Dark Surface (TF12)  
 \_\_\_ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

ANTHROPOGENIC SOIL

# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: RAVINY C1/C2 City/County: LINDEN, UNION Sampling Date: 12/26/17  
 Applicant/Owner: EXXON MOBIL / PCC State: NO Sampling Point: C2 SB4  
 Investigator(s): D. FRESE Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): FILL PLAIN Local relief (concave, convex, none): CONCAVE  
 Slope (%): 2/2 Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Urdsharts NWI classification: PEMIR  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ☒  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks: (Explain alternative procedures here or in a separate report.)	
<u>Upland adj to Wetland. Flags A7 - A8.</u>	

## HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? Yes _____ No <input checked="" type="checkbox"/> (includes capillary fringe)	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**VEGETATION – Use scientific names of plants.**

Sampling Point: C25B4

Tree Stratum (Plot size: <u>1/10 AC</u> )	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>POPULUS GRANDIDENTATA</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)														
2. <u>BETULA POPULIFOLIA</u>	<u>60%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>															
3. <u>LIR. STYRACIS FLUA</u>	<u>20%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>110</u></td> <td>x 3 = <u>330</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>5</u></td> <td>x 5 = <u>25</u></td> </tr> <tr> <td>Column Totals: <u>120</u></td> <td>(A) <u>375</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>3.41</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>110</u>	x 3 = <u>330</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species <u>5</u>	x 5 = <u>25</u>	Column Totals: <u>120</u>	(A) <u>375</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>0</u>	x 2 = <u>0</u>																	
FAC species <u>110</u>	x 3 = <u>330</u>																	
FACU species <u>5</u>	x 4 = <u>20</u>																	
UPL species <u>5</u>	x 5 = <u>25</u>																	
Column Totals: <u>120</u>	(A) <u>375</u> (B)																	
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
<b>Sapling/Shrub Stratum (Plot size: <u>1/10 AC</u>)</b>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)														
1. <u>IRUUS LOPPALYNUM</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>UPL</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<b>Herb Stratum (Plot size: <u>1/10 AC</u>)</b>				<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.														
1. <u>PONILUM VIGETUM</u>	<u>30%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>														
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<b>Woody Vine Stratum (Plot size: _____)</b>																		
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
<b>Remarks: (Include photo numbers here or on a separate sheet.)</b>																		



# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: BORWY 01/02 City/County: LINCOLN/UNION Sampling Date: 12/20/17  
 Applicant/Owner: EXXON MOBIL / P66 State: ND Sampling Point: C2-S01  
 Investigator(s): \_\_\_\_\_ Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave  
 Slope (%): 1/80 Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: ODOPUS-S15 NWI classification: PEM1  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ☒  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	If yes, optional Wetland Site ID: <u>WETLAND A</u>
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: (Explain alternative procedures here or in a separate report.) <u>NEAR FLOW A15</u>	

## HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0-2"</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>3"</u>		
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**VEGETATION** – Use scientific names of plants.

Sampling Point: C2 SB1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status															
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
_____ = Total Cover				<b>Prevalence Index worksheet:</b> <table style="width: 100%;"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>100</u></td> <td>x 2 = <u>200</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>200</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>100</u>	x 2 = <u>200</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u> (A)	<u>200</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>100</u>	x 2 = <u>200</u>																	
FAC species <u>0</u>	x 3 = <u>0</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>100</u> (A)	<u>200</u> (B)																	
_____ = Total Cover																		
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																		
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
_____ = Total Cover																		
<b>Herb Stratum (Plot size: <u>1/10 AC</u>)</b>																		
1. <u>PARAGONITES AUSTRALIS</u>	<u>100%</u>	<u>✓</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
12. _____	_____	_____	_____															
_____ = Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																		
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
_____ = Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.)				<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.														
				<b>Hydrophytic Vegetation Present?</b> Yes <u>✓</u> No _____														

Sampling Point: C2 SBI

Northcentral and Northeast Region – Interim Version

# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: BARWAY C1/C2 City/County: LINDEN/UNION Sampling Date: 12/20/17  
 Applicant/Owner: EXXON MOBIL / PCG State: NO Sampling Point: C2 S82  
 Investigator(s): D. PARRISH Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): RIU Local relief (concave, convex, none): CONCAVE  
 Slope (%): 2/90 Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: UDORTINETS NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ☒  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks: (Explain alternative procedures here or in a separate report.) <u>UPSLIDE FROM AIS</u>	

## HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>216"</u>	
Saturation Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
(includes capillary fringe)		Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**VEGETATION** – Use scientific names of plants.

Sampling Point: C2 SB2

Tree Stratum (Plot size: <u>1/10 AC</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>POPULUS QUINQUEFLOLATA</u>	<u>70%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2.	<u>LYCOPodium SP.</u>	<u>10%</u>	<input type="checkbox"/>	<u>FAC</u>
3.	<u>RHUS COPALLINUM</u>	<u>10%</u>	<input type="checkbox"/>	<u>UPL</u>
4.				
5.				
6.				
7.				
		<u>90</u>	= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>1/10 AC</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>FRAXINUS VIRGINICA</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
2.				
3.				
4.				
5.				
6.				
7.				
		<u>5</u>	= Total Cover	

Herb Stratum (Plot size: <u>1/10 AC</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>PANICUM VIRGATUM</u>	<u>20%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2.	<u>PROSOPIS ALBA</u>	<u>5%</u>	<input type="checkbox"/>	<u>FACW</u>
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		<u>25</u>	= Total Cover	

Woody Vine Stratum (Plot size: _____)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
			= Total Cover	

Remarks: (Include photo numbers here or on a separate sheet.)

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>10</u>	x 2 = <u>20</u>
FAC species <u>30</u>	x 3 = <u>90</u>
FACU species <u>70</u>	x 4 = <u>280</u>
UPL species <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>120</u> (A)	<u>440</u> (B)

Prevalence Index = B/A = 3.67

**Hydrophytic Vegetation Indicators:**

- ☒ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0<sup>1</sup>
- ☐ Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes ☒ No ☐

## SOIL

Sampling Point: CZ SB2

[illegible]

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- \_\_\_ Histosol (A1)
- \_\_\_ Histic Epipedon (A2)
- \_\_\_ Black Histic (A3)
- \_\_\_ Hydrogen Sulfide (A4)
- \_\_\_ Stratified Layers (A5)
- \_\_\_ Depleted Below Dark Surface (A11)
- \_\_\_ Thick Dark Surface (A12)
- \_\_\_ Sandy Mucky Mineral (S1)
- \_\_\_ Sandy Gleyed Matrix (S4)
- \_\_\_ Sandy Redox (S5)
- \_\_\_ Stripped Matrix (S6)
- \_\_\_ Dark Surface (S7) (LRR R, MLRA 149B)
- \_\_\_ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- \_\_\_ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- \_\_\_ Loamy Mucky Mineral (F1) (LRR K, L)
- \_\_\_ Loamy Gleyed Matrix (F2)
- \_\_\_ Depleted Matrix (F3)
- \_\_\_ Redox Dark Surface (F6)
- \_\_\_ Depleted Dark Surface (F7)
- \_\_\_ Redox Depressions (F8)

### Indicators for Problematic Hydric Soils<sup>3</sup>:

- \_\_\_ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- \_\_\_ Coast Prairie Redox (A16) (LRR K, L, R)
- \_\_\_ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- \_\_\_ Dark Surface (S7) (LRR K, L)
- \_\_\_ Polyvalue Below Surface (S8) (LRR K, L)
- \_\_\_ Thin Dark Surface (S9) (LRR K, L)
- \_\_\_ Iron-Manganese Masses (F12) (LRR K, L, R)
- \_\_\_ Piedmont Floodplain Soils (F19) (MLRA 149B)
- \_\_\_ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- \_\_\_ Red Parent Material (TF2)
- \_\_\_ Very Shallow Dark Surface (TF12)
- \_\_\_ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: FILL MATERIAL

Depth (inches): 16"

Hydric Soil Present? Yes \_\_\_\_\_ No ☒

Remarks:

# **WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: RAYWAY CI/C2 City/County: LINDEN, UNION Sampling Date: 12/20/17  
 Applicant/Owner: P66 / EM State: NJ Sampling Point: W131  
 Investigator(s): D. RASESE Section, Township, Range: CITY OF LINDEN  
 Landform (hillslope, terrace, etc.): ANTHROPOGENIC Local relief (concave, convex, none): CONCAVE  
 Slope (%): 45% Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: UDOPRMENTS NWI classification: PSSIC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ☒  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## **SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: (Explain alternative procedures here or in a separate report.) <u>ANTHROPOGENIC SOILS OVER LANDFILL / WASTE MATERIAL. SOILS COMPOSED OF VARIOUS ARTIFACTS INCLUDING GRAVEL, BRICK, CONCRETE, ETC.</u>	

## **HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (minimum of two required)</b>
<b>Primary Indicators (minimum of one is required; check all that apply)</b>		
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b>		
Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0-76"</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0-10"</u>		
Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0-10"</u> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: <u>ASAP WL RLOG B2</u>		

**VEGETATION** – Use scientific names of plants.

Sampling Point: W81

Tree Stratum (Plot size: <u>1/10 AC</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>ALBESCEA SP.</u>	<u>1%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2.			
3.			
4.			
5.			
6.			
7.			

Sapling/Shrub Stratum (Plot size: <u>1/10 AC</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>BACCHARIS HALIMIFOLIA</u>	<u>15%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
2. <u>PROSOPIS PENNSYLVANICA</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
3.			
4.			
5.			
6.			
7.			

Herb Stratum (Plot size: <u>1/10 AC</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>PANICUM VIRGATUM</u>	<u>50%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. <u>DIPOLOPSIS AUSTRIALIS</u>	<u>40%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>55</u>	x 2 = <u>110</u>
FAC species <u>56</u>	x 3 = <u>168</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>111</u>	(A) <u>278</u> (B)

Prevalence Index = B/A = 2.50

**Hydrophytic Vegetation Indicators:**

☒ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0<sup>1</sup>

☐ Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

Sampling Point: W61

[illegible]

### Hydric Soil Indicators:

- \_\_\_ Polyvalue Below Surface (S8) (LRR R, **MLRA 149B**)
- \_\_\_ Thin Dark Surface (S9) (LRR R, **MLRA 149B**)
- \_\_\_ Loamy Mucky Mineral (F1) (LRR K, L)
- \_\_\_ Loamy Gleyed Matrix (F2)
- \_\_\_ Depleted Matrix (F3)
- \_\_\_ Redox Dark Surface (F6)
- \_\_\_ Depleted Dark Surface (F7)
- \_\_\_ Redox Depressions (F8)

- ☐ 2 cm Muck (A10) (LRR K, L, **MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

**Restrictive Layer (if observed):**

Hydric Soil Present? Yes ☒ No ☐

Remarks:

# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: BAYWAY C1/C2 City/County: LINDEN, UNION Sampling Date: 12/20/17  
 Applicant/Owner: P66 / IEM State: NJ Sampling Point: W32  
 Investigator(s): D. FROESE Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): ONTARIO ACQUIC Local relief (concave, convex, none): CONCAVE  
 Slope (%): 45% Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: UDUGTLENTS NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ☒  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks: (Explain alternative procedures here or in a separate report.)  <u>Upland adjacent to Wetland Flag B2.</u>	

## HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? Yes _____ No <input checked="" type="checkbox"/> (includes capillary fringe)	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**VEGETATION** – Use scientific names of plants.

Sampling Point: 402

Tree Stratum (Plot size: <u>1/10 AC</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>POPULUS MONILIFOLIA</u>	<u>10%</u>	<input checked="" type="checkbox"/>	<u>FAL</u>
2.	<u>POPULUS CANDIDATA</u>	<u>10%</u>	<input checked="" type="checkbox"/>	<u>FALU</u>
3.	<u>LIQUIDAMBAR styr.</u>	<u>5%</u>		<u>FAL</u>
4.				
5.				
6.				
7.				

25 = Total Cover

Sapling/Shrub Stratum (Plot size: <u>1/10 AC</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>BACCARIS NOLIMIFOLIA</u>	<u>20%</u>	<input checked="" type="checkbox"/>	<u>FALU</u>
2.				
3.				
4.				
5.				
6.				
7.				

20 = Total Cover

Herb Stratum (Plot size: <u>1/10 AC</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>POGONITES AUSTRALIS</u>	<u>60%</u>	<input checked="" type="checkbox"/>	<u>FALU</u>
2.	<u>PANICUM VIRGATUM</u>	<u>30%</u>	<input checked="" type="checkbox"/>	<u>FAL</u>
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

90 = Total Cover

Woody Vine Stratum (Plot size: _____)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				

\_\_\_\_\_ = Total Cover

Remarks: (Include photo numbers here or on a separate sheet.)

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>45</u>	x 3 = <u>135</u>
FACU species <u>16</u>	x 4 = <u>64</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>135</u> (A)	<u>240</u> (B)

Prevalence Index = B/A = 2.40

**Hydrophytic Vegetation Indicators:**

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0<sup>1</sup>

☐ Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

Hydrophytic  
Vegetation  
Present?

Yes ☒ No ☐

Sampling Point: WB2

[illegible]

***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



## **RESUMES OF PREPARERS**

**DOUGLAS A. FREESE, Ph.D.**

**PROJECT DIRECTOR**

**ASCE Grade PVI**

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**YEARS OF EXPERIENCE:** 29

**EDUCATION:**

Ph.D. Forestry/Wetland Ecology (ecology minor), North Carolina State University, 1994; M.S. Forestry (soil science minor), The Pennsylvania State University, 1988; B.S. Environmental Resource Management, Pennsylvania State University, 1984

**PROFESSIONAL REGISTRATION:**

Certified Professional Soil Scientist, Soil Science Society of America (ARCPACS #22539); Certified Wetland Delineator, U.S. Army Corps of Engineers Baltimore District (WDCP#93MD0310003A); OSHA certified Hazardous Waste Operations and Emergency Response (93JAC40HW3190); New Jersey State Approved Forester, New Jersey Department of Environmental Protection 2000

**TRAINING:**

Restoration and Resilience in New Jersey's Forests, Duke Farms, NJ, Forest Guild (2013); Wetland Evaluation Technique (WET) Version II, Federal Highway Administration (1989); Jurisdictional Delineation and Identification of Wetlands Using the 1989 Federal Manual, The Chesapeake Bay Program Federal Wetlands Task Force, Richmond, VA (1989); NJ Wetlands Manual Training Workshop, Rutgers – New Jersey Agricultural Experiment Station, Office of Continuing Professional Education, August 2008; Environmental Site Classification Conference, NC State Hardwood Research Cooperative (1990); Forest Stewardship Professional's Training & Certification, PA Bureau of Forestry (1992); 1st Wetlands Regulatory Workshop, USEPA (1998); Site Remediation Basics, Cook College (1999); "A Case Study of Construction Techniques Implemented at a "Design-Build" Wetland Mitigation Project in New Jersey" Presented at the 3rd Wetlands Regulatory Workshop, USEPA (2000); National Hydric Soils Workshop, USEPA (2001); Basic Processes in Hydric Soils, North Carolina State University and University of Georgia, (2005); Advanced Problems in Hydric Soil Evaluation, North Carolina State University and University of Georgia (2005); USOSHA HAZWOPER 8-Hour Refresher 2006 – 2017; Environmental and Ecological Risk Assessment, Cook College, 2001; Landscape Restoration Conference, Cook College (1989); Section 404 & PADEP Chapter 105 Permit and Compliance Workshop, FHWA, PennDOT & PADEP (2007); Northeastern Plant Health & Pest Conference, Northeastern Branch of CSA (2016);

**KEY QUALIFICATIONS:**

Dr. Freese has been involved with all environmental aspects of public and private transportation, solid waste, utilities and infrastructure development projects. He is an expert in wetland and riparian mitigation project design, construction and post-construction monitoring and maintenance. He has performed project management, environmental constraints mapping, threatened species surveys, environmental impact analysis, state and federal wetland delineation and permitting, and wetland mitigation design, construction oversight, and maintenance/monitoring. Dr. Freese has worked with multidisciplinary teams to develop various NEPA documents including Environmental Impact Statements, Environmental Assessments, and Categorical Exclusion Documentations. Dr. Freese has designed and implemented numerous wetland and riparian mitigation and habitat restoration projects in New Jersey, Delaware, North Carolina, and Pennsylvania; including wetland mitigation banks, design build wetland and riparian mitigation projects and design bid build projects. In addition, Dr. Freese has conducted research to determine the effect of timber harvesting disturbances on the ecological functions of forested

wetlands and has prepared detailed functional assessments of wetlands using WETII, CDM and HGM methodologies. Dr. Freese was an invited participant in the development of the NJDEP Manual for Wetland Mitigation Hydrological Budget Preparation.

**EMPLOYMENT HISTORY:**

**2004 to 2006, *Blackwater Consultants, LLC*, Principal** – Wetland delineation, wetland permitting, endangered species studies, wetland mitigation design.

**1996 to 2004, *Triangle Wetland Consultants, LLC (later merged with GreenVest, LLC)*, Project Manager** - Wetland delineation, wetland permitting, wetland mitigation design.

**1993-1996, *Rettew Associates, Inc.*, Mechanicsburg, PA, Environmental Scientist**

**1990 to 1993, *NC State University, College of Forest Resources*, Raleigh, NC, Doctoral Candidate**

**1988 to 1990, *Gannett-Fleming, Inc.*, Camp Hill, PA, Environmental Scientist**

**RELEVANT EXPERIENCE:**

**WMDSPA G.R.O.W.S Landfill Treatment Plant Outfall, Falls Township, Bucks County, PA.** Waste Management Disposal Services of PA/Brown & Caldwell. WMDSPA is planning to construct a new wastewater treatment plant to process leachate from the existing landfill. Project Manager responsible for performance of a wetland delineation. Performed habitat assessment for seven rare, threatened or endangered plant species identified by the Pennsylvania Department of Conservation and Natural Resources (PADCNR) as potentially occurring within the project area. Designed a wetland habitat restoration plan. Also responsible for preparation and submission of applications for PADEP General Permit #4 and a USACE Nationwide Permit.

**WMDSPA Fairless Expansion, Falls Township, Bucks County, PA.** Waste Management Disposal Services of PA/Golder Associates, Inc. Responsible for completion of PADEP Environmental Assessment and wetland delineation on a highly disturbed former industrial site, Jurisdictional Determination application and project team meetings. The Preliminary JD was issued by the USACE in April 2009. An ACT2 cleanup approval was obtained for the project and Dr. Freese was responsible for formulation of a compensatory wetland mitigation strategy for 6.9 acres of tidal and non-tidal wetland impacts. Preliminary hydrologic and soils data were collected for two selected sites and Dr. Freese completed a design for both tidal and non-tidal wetland mitigation sites. Negotiations with the USACE resulted in a strategy to satisfy the non-tidal wetland mitigation requirements through restoration of an existing Federal enforcement action in the area. Dr. Freese completed the design and construction specifications for the tidal wetland mitigation site. The final wetland mitigation plan was submitted to the USACE for approval in 2015.

**Global Landfill Superfund Site, Jagroop Tidal Wetland Mitigation Site, Sayreville Township, Middlesex County, NJ.** Golder Associates, Inc. Wetland Mitigation was required to offset tidal wetland filling for closure of the landfill to satisfy NJDEP and USEPA requirements. ASGECI prepared the NJDEP permit applications, performed a mitigation site search and identified a suitable wetland mitigation site. Permit Equivalency documentation under CERCLA was prepared to address disturbances to approximately 3.96 acres of wetland that will be disturbed as a result of remedial activities. A 9.0 acre site was identified as a partial mitigation site. The site included approximately 6 acres of degraded wetland dominated by common reed (*Phragmites australis*) along with high value upland. Dr. Freese, Project Manager was responsible for design of the

Final Wetland Mitigation Proposal; preparation of NJDEP Pesticide Control Program/Pesticide Application and herbicide application oversight; construction bid document assistance; and oversight of grading and planting of the mitigation project. Project design included establishment of smooth cordgrass (*Spartina alterniflora*) and a perimeter of salt tolerant shrubs, grasses and forbs. The project received final regulatory release from the NJDEP in 2013.

**Prosser Hollow Road (T-338) Bridge Replacement over the Allegheny River, Hebron Township, Potter County, PA.** PennDOT District 2-0/SITE Blauvelt Engineers, Inc. Project Manager responsible for performance of a detailed wetland delineation of the project area; completion of the Jurisdictional Determination from the US Army Corps of Engineers Pittsburgh Office; and preparation of the joint permit application PADEP Environmental Assessment for project activities.

**Pennsylvania Turnpike Widening 40-48, Allegheny County, PA.** Pennsylvania Turnpike Commission/ McCormick Taylor Associates. Performed 22 wetland delineations within an 8 mile transportation corridor, prepared the wetland identification and delineation report and prepared an application for a Jurisdictional Determination (JD) from the USACE for the PA Turnpike Commission and McCormick Taylor Associates. The proposed project included characteristic alluvial forest and previously mined lands within the Allegheny Plateau of western PA.

**Echo Point Sand & Gravel, Falls Township, Bucks County, PA.** EarthRes Group, Inc. and Waste Management Disposal Services of PA. Project Manager responsible for the performance of wetland delineation on a 250-acre proposed sand and gravel facility, prepared the wetland identification and delineation report and prepared and submitted an application for a Jurisdictional Determination (JD) from the USACE, Philadelphia District. The proposed project was located within a highly disturbed agricultural and floodplain environment adjacent to the Delaware River.

**Leeward Quarry, Lackawaxen Township, Pike County, PA.** EarthRes Group, Inc. Performed the wetland delineation on a 30-acre proposed quarry expansion, prepared the wetland identification and delineation report and secured a Jurisdictional Determination (JD) from the USACE for EarthRes Group, Inc. and E.R. Linde Construction. The proposed project was located within characteristic mixed oak forest of the glaciated Pocono Plateau.

**Woodbury Creek Wetland Mitigation Bank, Gloucester County, NJ.** Provided wetland delineation, permitting, conceptual wetland design, and pre-construction monitoring services to U.S. Wetland Services, L.P. for a 200+ acre wetland bank on a severely degraded dredge spoil disposal site. The project included conversion of dense stands of common reed (*Phragmites australis*) to seasonally saturated forested wetlands.

**Wyckoffs Mills Wetland Bank, Middlesex County, NJ.** Provided site evaluation, wetland delineation, permitting, hydrologic modeling, wetland mitigation design, and regulatory agency negotiation services to U.S. Wetland Services, L.P. for a 170 acre wetland mitigation bank including restoration and creation of riverine forested and seasonally flooded scrub-shrub wetlands and restoration of over 6,000 feet of degraded stream channel.

**Route 130 Interchange Wetland Mitigation Project, Burlington County, NJ.** New Jersey Turnpike Authority/Rancocas Investments. Responsible for managing a 1.2 million dollar design-built mitigation contract including site selection and acquisition, pre-construction monitoring, conceptual and final design, permitting, construction supervision, and maintenance and post construction monitoring of an 11 acre wetland creation project. The project was deemed successful by the NJDEP in 2006.

**NJ Transit Wetland Mitigation Project for the River Line (SNJLRTS), Gloucester County, NJ.** Southern New Jersey Light Rail Transit System/GreenVest, LLC. Performed wetland mitigation site search, design, hydrologic monitoring and modeling, construction oversight and 5 year post construction monitoring and adaptive management for a 3 acre freshwater tidal mitigation site. The project was approved by the NJDEP and USACE.

**LIZ DANCER**  
***ENVIRONMENTAL SCIENTIST***  
**YEARS OF EXPERIENCE: 9**

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**EDUCATION:**

P.S.M. Environmental Science, Stockton University, 2016; B.S. Conservation & Wildlife Management, Delaware Valley University, 2010.

**PROFESSIONAL CERTIFICATIONS:**

OSHA 40-Hour certified Hazardous Waste Operations and Emergency Response, 2017.

**TRAINING:**

Wetland Delineation Certificate Series, Rutgers University Continuing Education (2017), Wetlands Vegetation Identification: North- Rutgers University Continuing Education (2016). NJDEP Flood Hazard Area Control Act Rules Certificate Series (2018).

**KEY QUALIFICATIONS:**

Ms. Dancer has extensive experience in performance of ecological surveys in New Jersey and other states. She is experienced in wetland delineation, endangered and threatened species surveys, environmental impact analysis, preparation of environmental permit applications, and wetland mitigation site construction and post construction monitoring.

**EMPLOYMENT HISTORY:**

**2015, University of Delaware- Saltmarsh Habitat Avian Research Program, Seasonal Field Crew Leader-** Secretive marsh bird surveys, vegetation surveys, data entry.

**2014, MassAudubon- Coastal Waterbird Program, Seasonal Field Crew Leader-** Shorebird monitoring, data entry.

**2012-2013, U.S. Fish and Wildlife Service/Ducks Unlimited- South Atlantic Region, Seasonal Waterbird Technician-** Waterfowl, shorebird, and wading bird surveys, vegetation surveys, data entry.

**2012-2013, Florida Atlantic University, Seasonal Field Technician-** Airboat operations, wading bird surveys and nest monitoring, prey item and vegetation surveys, data entry.

**2012, University of Florida, Seasonal Field Assistant-** Marsh rabbit radio telemetry, vegetation community surveys, data entry.

**2011, Louisiana State University, Seasonal Field Assistant-** Secretive marsh bird point-count/call-back surveys, king rail radio telemetry, vegetation community surveys, data entry.

**2010, U.S. Fish and Wildlife Service- Edwin B. Forsythe National Wildlife Refuge, Coastal Nesting Bird Intern and Waterbird Technician-** Shorebird surveys and nest monitoring, bird banding, interpretive work, data entry.

**RELEVANT EXPERIENCE:**

**NEUP Pipeline Project, Sussex County, NJ –Eastern PA. NV5, LLC.** Assisted NV5 field personnel with annual monitoring of restored wetlands within the NEUP Pipeline ROW.

**LIZ DANCER**  
**ENVIRONMENTAL SCIENTIST**

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**Atlantic Highlands Former MGP Site, Borough of Atlantic Highlands, Monmouth County, NJ.** *GEI Consultants, Inc./NJNG.* Assisted with wetland delineation and documentation for proposed remediation project.

**Borne Chemical Company Site, City of Elizabeth, Union County, NJ.** *Golder Associates, Inc.* Assisted with wetland delineation and riparian zone evaluation for proposed remediation project, prepared wetland delineation report.

**Reconstruction of Bridge S-26 on County Route 33 over Town Neck Creek/Borough of Little Silver, Monmouth County, NJ.** *KS Engineers, P.C./Monmouth County.* Assisted with wetland delineation, prepared NJDEP Freshwater Wetland General Permit 10A application and Coastal Wetland Permit application for proposed bridge replacement project.

**NJDOT Route 15 SB over Rockaway River/GPI/Jefferson Township, Morris County, NJ.** *Greenman-Pedersen, Inc./NJDOT.* Assisted with wetland delineation and prepared wetland delineation report for proposed bridge replacement project.

**Replacement of Bridge 1400-073 on Landing Road Over NJ Transit and Former Morris Canal. Roxbury Township, Morris County, NJ.** *TY Lin International/Morris County Dept. of Planning.* Performed wetland field delineation for proposed bridge replacement project.

**NYDOT Route 17 at 32 Interchange Reconstruction Design-Build. Villages of Woodbury and Harriman, Towns of Monroe and Woodbury; Orange County, NY.** *HNTB Corporation/NYDOT.* Performed wetland delineation and site evaluation of two sites proposed for ITS structures.

**Newton Lake Dam Dredging and Reclamation Project. Collingswood Borough/Haddon Township/Oaklyn Borough/Audubon Park Borough, Camden County, NJ.** *F.X. Browne, Inc./Camden County.* Performed wetland delineation and prepared delineation report for proposed dredging activities.

**Avalon Boulevard Bridge Repairs/GPI, Middle Township, Cape May County, NJ.** *Greenman-Pedersen, Inc./Cape May County Department of Public Works.* Performed wetland delineation and T&E habitat assessment for proposed bridge repairs.

**Ocean Drive (CR619) over Grassy Sound, Borough of Avalon/Sea Isle City & Township of Middle, Cape May County, NJ.** *Greenman-Pedersen, Inc./Cape May County Department of Public Works.* Performed wetland delineation and T&E habitat assessment for proposed submarine cable replacement.

**Palma Property, Pequannock Township, Morris County, NJ.** *Carolyn Palma.* Performed wetland delineation, prepared wetland delineation report.

**Cape May County Landis Avenue (CR619)/GPI/Sea Isle City, Sea Isle City, Cape May County, NJ.** *Greenman-Pedersen, Inc./Cape May County.* Performed wetland delineation and T/E Species habitat assessments of CR619 and outfall work areas for proposed roadway improvements.

**Ocean Drive (CR619) over Townsends Inlet Underwater Substructure Repairs/GPI, Borough of Avalon & Sea Isle City, Cape May County, NJ.** *Greenman-Pedersen, Inc./Cape May County Department of Public Works.* Performed wetland delineation and T&E habitat assessment for proposed bridge underwater substructure repairs.

**LIZ DANCER**  
***ENVIRONMENTAL SCIENTIST***

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**Fort Dix Photovoltaic Carport, Springfield Township and Wrightstown Borough, Burlington County, NJ.** *PARS Environmental/New Jersey Department of Military and Veterans Affairs.* Performed wetland delineation, prepared Line Verification LOI application materials, prepared draft Pinelands Development Application for construction of photovoltaic carport.

**GSA Sea Girt NGTC INRMP Services/NJARNG, Sea Girt Borough, Monmouth County, NJ.** *GSA/US Property & Fiscal Office NJ/New Jersey Army National Guard (NJARNG).* Contributed to site Freshwater Wetlands and Coastal Habitat Enhancement Plan draft and prepared associated Freshwater Wetlands, CAFRA, and USACE permits for proposed onsite habitat enhancement activities.

**NJDOT Route 9 Intersection Improvements/Toms River and Lakewood/Arora, Toms River and Lakewood Townships, Ocean County, NJ.** *Arora & Associates, PC/NJDOT.* Assisted with wetland and State open water delineations and documentation for proposed roadway improvements.

**Bayonne Aqueduct Hackensack River Crossing Design, City of Kearny & City of Jersey City, Hudson County, NJ.** *SUEZ Water Environmental/CDM Smith.* Performed wetland delineation and T&E habitat assessment for proposed submarine crossing.

**Country Club Farms Subdivision, Bedminster Township, Somerset County, NJ.** *Rao Desu* Prepared Flood Hazard Area Verification Extension request, Flood Hazard Area Individual Permit application, Freshwater Wetlands General Permits 6, 7, and 10A applications, and Letter of Interpretation Extension request for proposed private access road and driveways.

***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



**PREVIOUSLY ISSUED LOI**



## State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Land Use Regulation

Mail Code 501-02A

P.O. Box 420

Trenton, New Jersey 08625-0420

[www.nj.gov/dep/landuse](http://www.nj.gov/dep/landuse)

CHRIS CHRISTIE  
Governor

KIM GUADAGNO  
Lt. Governor

BOB MARTIN  
Commissioner

SEP 21 2016

Frank J. Messina  
ExxonMobil Environmental Services Company  
1400 Park Avenue, Building 7  
Linden, New Jersey 07036

RE: Freshwater Wetlands Letter of Interpretation - Line Verification

DLUR File No.: 2009-14-0002.4

Activity Number: FWW 150001

Project: Bayway Refinery Complex

Blocks: 4; 515; 516; 517; 518; 519; 520; 521; 522; 523; 524; 568; 580; 581; 586

Lots: 2.A, 2.B; 1; 1, 1.02, 2; 1; 1, 2; 1, 2; 1, 3, 4, 5, 6, 8; 1, 2; 1; 1, 2; 9, 24; 10; 40, 42, 47;

11.06; 3.01, 3.02, 5, 6, 17, 18

Linden City, Union County

Dear Mr. Messina:

This letter is in response to your request for a Letter of Interpretation to have Division of Land Use Regulation (Division) staff verify the boundary of the freshwater wetlands and/or State open waters on the referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection, the U.S. Army Corps of Engineers Philadelphia and New York Districts, and the U.S. Environmental Protection Agency, the NJDEP, the Division is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACOE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon site inspections conducted by Division staff on March 1, 2016, April 4, 2016, and April 7, 2016, the Division has determined that the wetlands and waters boundary line(s) as shown on the plan map entitled: "WETLAND DELINEATION SURVEY, BAYWAY REFINERY COMPLEX, CITY OF LINDEN, UNION COUNTY, NEW JERSEY," consisting of fourteen (14) sheets, all dated September 3, 2015, last revised June 9, 2016, and prepared by Keller & Kirkpatrick, Inc., is accurate as shown.

### Wetlands Resource Value Classification

The Division has determined that the resource value and the standard transition area adjacent to the delineated wetlands are as follows, referenced per approved sheet:

#### **Sheet No. 1 and Sheet No. 2 of 14:**

- Index sheets and no wetlands illustrated.

**Sheet No. 3 of 14:**

- State open waters delineated by flags “DS.”

**Sheet No. 4 of 14:**

- No freshwater wetlands, wetland transition areas or State open waters illustrated.

**Sheet No. 5 of 14:**

- Ordinary resource value wetlands are delineated by the following flags: BW6-2A through BW6-15A, BW6-1B through BW6-16B;
- Exceptional resource value wetlands delineated by the following flags: BW4-55 through BW4-69;
- Remaining wetlands are considered to be Intermediate resource value wetlands.

**Sheet No. 6 of 14:**

- State open waters are delineated by flags “DS;”
- Remaining wetlands are considered to be Exceptional resource value wetlands. The following wetland areas or points have been considered by the Department to be isolated wetlands and are not a part of a surface water tributary system: DW6-1 through DW6-36.

**Sheet No. 7 of 14:**

- State open waters are delineated by flags: “AS, DS and ES;”
- Remaining wetlands are considered to be Intermediate resource value wetlands.

**Sheet No. 8 of 14:**

- State open waters are delineated by the “TOB” reference;
- Ordinary resource value wetlands are delineated by the following flags: BW6-2A through BW6-15A and BW6-1B through BW6-16B;
- Exceptional resource value wetlands are delineated by the following flags: BW4-39 through BW4-69 and CS3-1 through CS3-27, CW7-1B through CW7-43B and CW7-1A through CW7-32A.
- Remaining wetlands are considered to be Intermediate resource value wetlands. The following wetland areas or points have been considered by the Department to be isolated wetlands and are not a part of a surface water tributary system: BP1-1 through BP1-17, BW5-1 through BW5-22, BW2-1 through BW2-17 and BW3-1 through BW3-17 (the BW2 and BW3 lines continue to Sheet No. 11).

**Sheet No. 9 of 14:**

- State open waters are delineated by flags “DS;”
- Intermediate resource value wetlands are delineated by flags: DW2-37 through DW2-41;
- Remaining wetlands are considered to be Exceptional resource value wetlands. The following wetland areas or points have been considered by the Department to be isolated wetlands and are not a part of a surface water tributary system: DP2-1A through DP2-9A and DP2-1B through DP2-7B.

**Sheet No. 10 of 14:**

- State open waters are delineated by flags “DS, ES4” and the following flags: ES3-1 through ES3-19 and ES3-1A through ES3-19A;
- Exceptional resource value wetlands are delineated by flags: EW5-1 through EW5-23, EW1-21 through EW1-32;

- Remaining wetlands are considered to be Intermediate resource value wetlands. The following wetland areas or points have been considered by the Department to be isolated wetlands and are not a part of a surface water tributary system: EW8-1 through EW8-13.

**Sheet No. 11 of 14:**

- State open waters are delineated by flags “CS1” and the “TOB” reference;
- Exceptional resource value wetlands are delineated by flags: CW1A-1 through CW1A-29 and CW1B-15 through CW1B-42, CW5-1 through CW5-13, BW1-2A through BW1-14A and BW1B-11 through BW1B-27;
- Remaining wetlands are considered to be Intermediate resource value wetlands. The following wetland areas or points have been considered by the Department to be isolated wetlands and are not a part of a surface water tributary system: CW3-1 through CW3-21, CW6-1 through CW6-13, CW4-1 through CW4-24.

**Sheet No. 12 of 14:**

- All wetlands are considered to be Intermediate resource value wetlands. The following wetland areas or points have been considered by the Department to be isolated wetlands and are not a part of a surface water tributary system: FW2-1 through FW2-17.

**Sheet No. 13 of 14:**

- Ordinary resource value wetlands are delineated by flags: HW1-B1 through HW1-B23 and to a point approximately 35 feet to the west of flag number HW1-B15;
- Exceptional resource value wetlands are delineated by flags: HW1-1 through HW1-16 and HS1-B1 through HS1-B9;
- Remaining wetlands are considered to be Intermediate resource value wetlands.

**Sheet No. 14 of 14:**

- All wetlands are considered to be Ordinary resource value wetlands.

The standard transition area required adjacent to Exceptional value wetlands is 150 feet. These wetlands are classified as exceptional resource value because they are associated a State threatened species. The standard transition area required adjacent to Intermediate value wetlands is 50 feet. There is no standard transition area required adjacent Ordinary value wetlands or State open waters. It should be noted that the Flood Hazard Area Control Act may require riparian zones on watercourses identified on the property. The resource value classification may affect requirements for wetland and/or transition area permitting. This classification may affect the requirements for an Individual Wetlands Permit (see N.J.A.C. 7:7A-7), the types of General Permits available for the property (see N.J.A.C. 7:7A-4 & 5) and any modification available through a transition area waiver (see N.J.A.C. 7:7A-6). Please refer to the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.) and implementing rules for additional information.

Wetlands resource value classification is based on the best information available to the Department. The classification is subject to reevaluation at any time if additional or updated information is made available, including, but not limited to, information supplied by the applicant.

Under N.J.S.A. 13:9B-7a(2), if the Division has classified a wetland as exceptional resource value, based on a finding that the wetland is documented habitat for threatened and endangered species that remains suitable for use for breeding, resting or feeding by such species, an applicant may request a change in this classification. Such requests for a classification change must demonstrate that the habitat is no longer suitable for the documented species because there has been a change in the suitability of this habitat. Requests for resource value classification changes and associated documentation should be submitted to the Division at the address at the top of this letter.

### General Information

Pursuant to the Freshwater Wetlands Protection Act Rules, you are entitled to rely upon this jurisdictional determination for a period of five years from the date of this letter unless it is determined that the letter is based on inaccurate or incomplete information. Should additional information be disclosed or discovered, the Division reserves the right to void the original letter of interpretation and issue a revised letter of interpretation.

Regulated activities proposed within a wetland, wetland transition area or water area, as defined by N.J.A.C. 7:7A-2.2 and 2.6 of the Freshwater Wetlands Protection Act rules, require a permit from this office unless specifically exempted at N.J.A.C. 7:7A-2.8. The approved plan and supporting jurisdictional limit information are now part of the Division's public records.

This letter in no way legalizes any fill which may have been placed, or other regulated activities which may have occurred on-site. This determination of jurisdiction extent or presence does not make a finding that wetlands or water areas are "isolated" or part of a surface water tributary system unless specifically called out in this letter as such. Furthermore, obtaining this determination does not affect your responsibility to obtain any local, State, or Federal permits which may be required.

### Appeal Process

In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days of the date the decision is published in the DEP Bulletin by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, P.O. Box 402, Trenton, NJ 08625-0402. This request must include a completed copy of the Administrative Hearing Request Checklist found at [www.state.nj.us/dep/landuse/forms](http://www.state.nj.us/dep/landuse/forms). Hearing requests received after 30 days of publication notice may be denied. The DEP Bulletin is available on the Department's website at [www.state.nj.us/dep/bulletin](http://www.state.nj.us/dep/bulletin). In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see the website [www.nj.gov/dep/odr](http://www.nj.gov/dep/odr) for more information on this process.

Please contact Kimberly Kessler of our staff by e-mail at [kimberly.kessler@dep.nj.gov](mailto:kimberly.kessler@dep.nj.gov) or by phone at (609) 984-6216 should you have any questions regarding this letter. Be sure to indicate the Department's file number in all communication.

Sincerely,



Cathryn Schaffer  
Environmental Specialist 3  
Bureau of Urban Growth and Redevelopment  
Division of Land Use Regulation

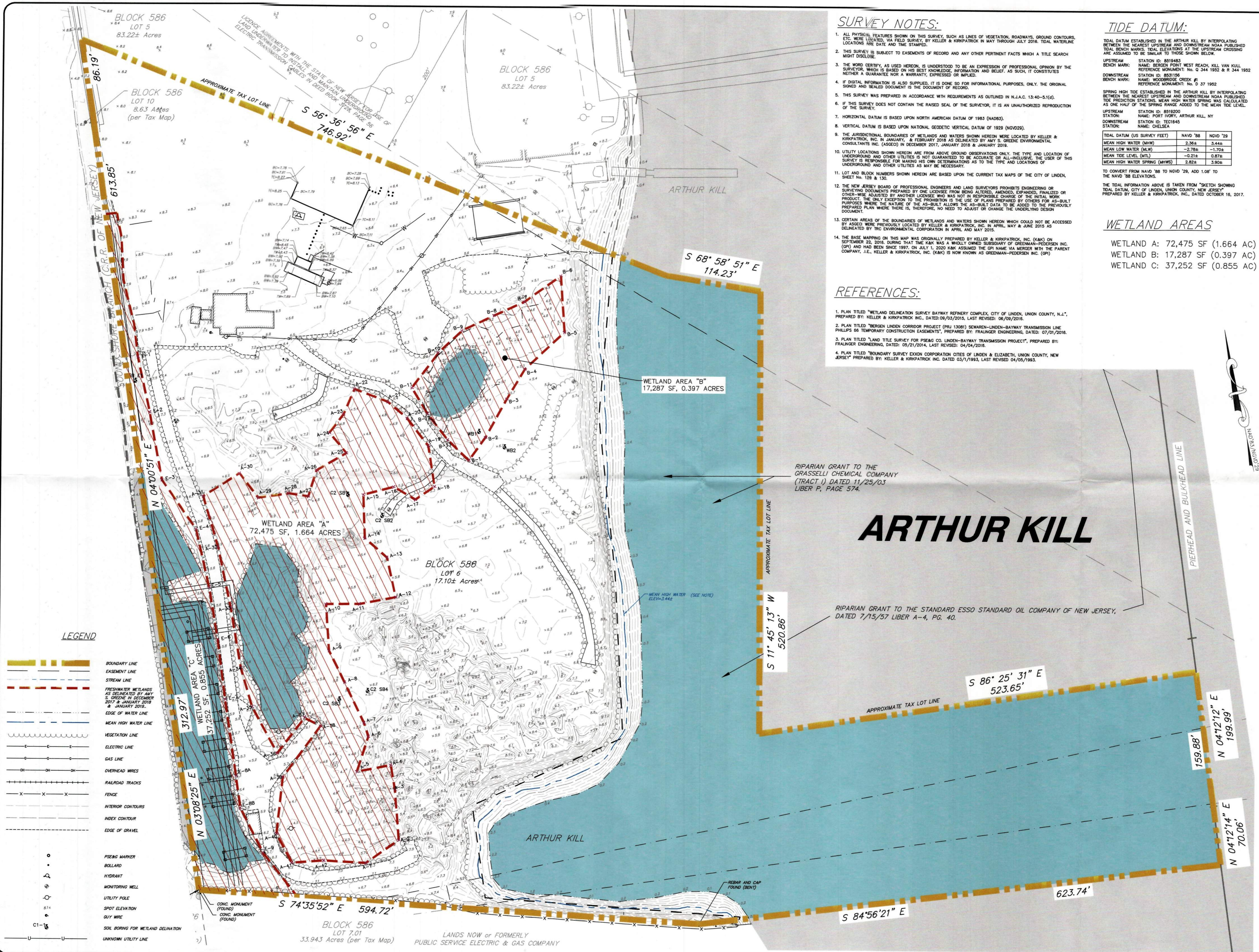
C: City of Linden Construction Official  
TRC Environmental Corporation, Attn: Cailyn Nichol (original)

***Application for Freshwater Wetlands  
Letter of Interpretation (LOI) Line Verification  
ExxonMobil – Bayway Refinery Complex IAOC C2  
February 24, 2021***



## **WETLAND LOCATION SURVEY**

Filename: W:\921205\_WF-LF\DWG\SURV\DWG\WF-LF 83-29 WETLANDS\_LOI\_BLK586.LOT6\_2020-10-05.DWG Plot Date: 2/4/2021 1:50 PM Plotted By: JOHN GALLOWAY



### SURVEY NOTES:

- ALL PHYSICAL FEATURES SHOWN ON THIS SURVEY, SUCH AS LINES OF VEGETATION, ROADWAYS, GROUND CONTOURS, ETC. WERE LOCATED VIA FIELD SURVEY, BY KELLER & KIRKPATRICK IN MAY THROUGH JULY 2016. TIDAL WATERLINE LOCATIONS WERE DATE AND TIME STAMPED.
- THIS SURVEY IS SUBJECT TO EASEMENTS OF RECORD AND ANY OTHER PERTINENT FACTS WHICH A TITLE SEARCH MIGHT DISCLOSE.
- THE WORD CERTIFY, AS USED HEREON, IS UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL OPINION BY THE SURVEYOR, WHICH IS BASED ON HIS BEST KNOWLEDGE, INFORMATION AND BELIEF. AS SUCH, IT CONSTITUTES NEITHER A GUARANTEE NOR A WARRANTY, EXPRESSED OR IMPLIED.
- IF DIGITAL INFORMATION IS ALSO SUPPLIED, IT IS DONE SO FOR INFORMATIONAL PURPOSES ONLY. THE ORIGINAL SIGNED AND SEALED DOCUMENT IS THE DOCUMENT OF RECORD.
- THIS SURVEY WAS PREPARED IN ACCORDANCE WITH REQUIREMENTS AS OUTLINED IN N.J.A.C. 13:40-5.1(d).
- THIS SURVEY DOES NOT CONTAIN THE RAISED SEAL OF THE SURVEYOR, IT IS AN UNAUTHORIZED REPRODUCTION OF THE SURVEY.
- HORIZONTAL DATUM IS BASED UPON NORTH AMERICAN DATUM OF 1983 (NAD83).
- VERTICAL DATUM IS BASED UPON NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).
- THE JURISDICTIONAL BOUNDARIES OF WETLANDS AND WATERS SHOWN HEREON WERE LOCATED BY KELLER & KIRKPATRICK, INC. IN JANUARY, & FEBRUARY 2016 AS DELINEATED BY AMY S. GREENE ENVIRONMENTAL CONSULTANTS INC. (ASCEC) IN DECEMBER 2017, JANUARY 2018 & JANUARY 2019.
- UTILITY LOCATIONS SHOWN HEREON ARE FROM ABOVE GROUND OBSERVATIONS ONLY. THE TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE USER OF THIS SURVEY IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATIONS AS TO THE TYPE AND LOCATIONS OF UNDERGROUND AND OTHER UTILITIES AS MAY BE NECESSARY.
- LOT AND BLOCK NUMBERS SHOWN HEREON ARE BASED UPON THE CURRENT TAX MAPS OF THE CITY OF LINDEN, SHEET NO. 128 & 130.
- THE NEW JERSEY BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS PROHIBITS ENGINEERING OR SURVEYING DOCUMENTS PREPARED BY ONE LICENSEE FROM BEING ALTERED, AMENDED, EXPANDED, FINALIZED OR OTHERWISE ADJUSTED BY ANOTHER LICENSEE WHO WAS NOT IN RESPONSIBLE CHARGE OF THE INITIAL WORK. THE ONLY EXCEPTION TO THE PROHIBITION IS THE USE OF PLANS PREPARED BY OTHERS FOR AS-BUILT PURPOSES. WHERE THE NATURE OF THE AS-BUILT ALLOWS THE AS-BUILT DATA TO BE ADDED TO THE PREVIOUSLY PREPARED PLAN WHERE THERE IS, THEREFORE, NO NEED TO ADJUST OR CHANGE THE UNDERLYING DESIGN DOCUMENT.
- CERTAIN AREAS OF THE BOUNDARIES OF WETLANDS AND WATERS SHOWN HEREON WHICH COULD NOT BE ACCESSED BY ASCEC WERE PREVIOUSLY LOCATED BY KELLER & KIRKPATRICK, INC. IN APRIL MAY & JUNE 2015 AS DELINEATED BY TRC ENVIRONMENTAL CORPORATION IN APRIL AND MAY 2015.
- THE BASE MAPPING ON THIS MAP WAS ORIGINALLY PREPARED BY KELLER & KIRKPATRICK, INC. (K&K) ON SEPTEMBER 22, 2016. DURING THAT TIME K&K WAS A WHOLLY OWNED SUBSIDIARY OF GREENMAN-PEDERSEN INC. (GPI) AND HAD BEEN SINCE 1997. ON JULY 1, 2020 K&K ASSUMED THE GPI NAME VIA MERGER WITH THE PARENT COMPANY, I.E. KELLER & KIRKPATRICK, INC. (K&K) IS NOW KNOWN AS GREENMAN-PEDERSEN INC. (GPI).

### REFERENCES:

- PLAN TITLED "WETLAND DELINEATION SURVEY BAYWAY REFINERY COMPLEX, CITY OF LINDEN, UNION COUNTY, N.J.", PREPARED BY: KELLER & KIRKPATRICK, INC. DATED: 09/03/2015, LAST REVISED: 06/09/2016.
- PLAN TITLED "WETLAND DELINEATION SURVEY BAYWAY REFINERY COMPLEX, CITY OF LINDEN, UNION COUNTY, N.J.", PREPARED BY: KELLER & KIRKPATRICK, INC. DATED: 09/03/2015, LAST REVISED: 06/09/2016.
- PLAN TITLED "LAND TITLE SURVEY FOR PSE&G CO. LINDEN-BAYWAY TRANSMISSION PROJECT", PREPARED BY: FRANKLIN ENGINEERING, DATED: 05/21/2014, LAST REVISED: 04/04/2016.
- PLAN TITLED "BOUNDARY SURVEY EXXON CORPORATION CITIES OF LINDEN & ELIZABETH, UNION COUNTY, NEW JERSEY" PREPARED BY: KELLER & KIRKPATRICK, INC. DATED 03/1/1993, LAST REVISED 04/05/1993.

### TIDE DATUM:

TIDAL DATUM ESTABLISHED IN THE ARTHUR KILL BY INTERPOLATING BETWEEN THE NEAREST UPSTREAM AND DOWNSTREAM NOAA PUBLISHED TIDAL BENCH MARKS. TIDAL ELEVATIONS AT THE UPSTREAM CROSSING ARE ASSUMED TO BE SIMILAR TO THOSE SHOWN BELOW.

UPSTREAM STATION ID: 8519483  
BENCH MARK: NAME: BERGEN POINT WEST REACH, KILL VAN KULL  
REFERENCE MONUMENT: No. Q 344 1952 & R 344 1952  
DOWNSTREAM STATION ID: 8531156  
BENCH MARK: NAME: WOODBRIDGE CREEK #1  
REFERENCE MONUMENT: No. D 37 1992

TIDAL DATUM (US SURVEY FEET)	NAVD '88	NGVD '29
MEAN HIGH WATER (MHW)	2.36±	3.44±
MEAN LOW WATER (MLW)	-2.78±	-1.70±
MEAN TIDE LEVEL (MTL)	-0.21±	0.87±
MEAN HIGH WATER SPRING (MHW5)	2.82±	3.90±

TO CONVERT FROM NAVD '88 TO NGVD '29, ADD 1.08' TO THE NAVD '88 ELEVATIONS.

THE TIDAL INFORMATION ABOVE IS TAKEN FROM "SKETCH SHOWING TIDAL DATUM, CITY OF LINDEN, UNION COUNTY, NEW JERSEY" PREPARED BY KELLER & KIRKPATRICK, INC. DATED OCTOBER 16, 2017.

### WETLAND AREAS

WETLAND A: 72,475 SF (1.664 AC)  
WETLAND B: 17,287 SF (0.397 AC)  
WETLAND C: 37,252 SF (0.855 AC)

**GPI** Engineering  
Design  
Planning  
Construction Management  
973.377.8500 GPINET.COM  
Greenman-Pedersen, Inc.  
301 Gibraltar Drive, Suite 2A  
Morris Plains, NJ 07950  
Certificate of Authorization #24GA27959500

REVISIONS
8
7
6
5
4
3
2
1

CLIENT: KLEINFELDER  
PROJECT: BAYWAY REFINERY COMPLEX  
BLOCK 586 LOT 6  
CITY OF LINDEN, UNION COUNTY, NEW JERSEY  
DRAWING TITLE: WETLAND LOCATION SURVEY FOR NJDEP LOI APPLICATION

KEVIN S. BOGERMAN  
Professional Land Surveyor  
License #41379

SCALE: 1" = 50'  
DRAWN BY: JFG  
CHECKED BY: WET  
DATE: 10/05/2020  
DRAWING NUMBER: SV-001  
SHEET NUMBER: 1 OF 1  
PROJECT NO: 921205\_WF-LF  
PHASE: